The PHOTOFACT® Servicer

SET 555 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ NOV. 1961

CONTENTS PHOTOFACT SET 555

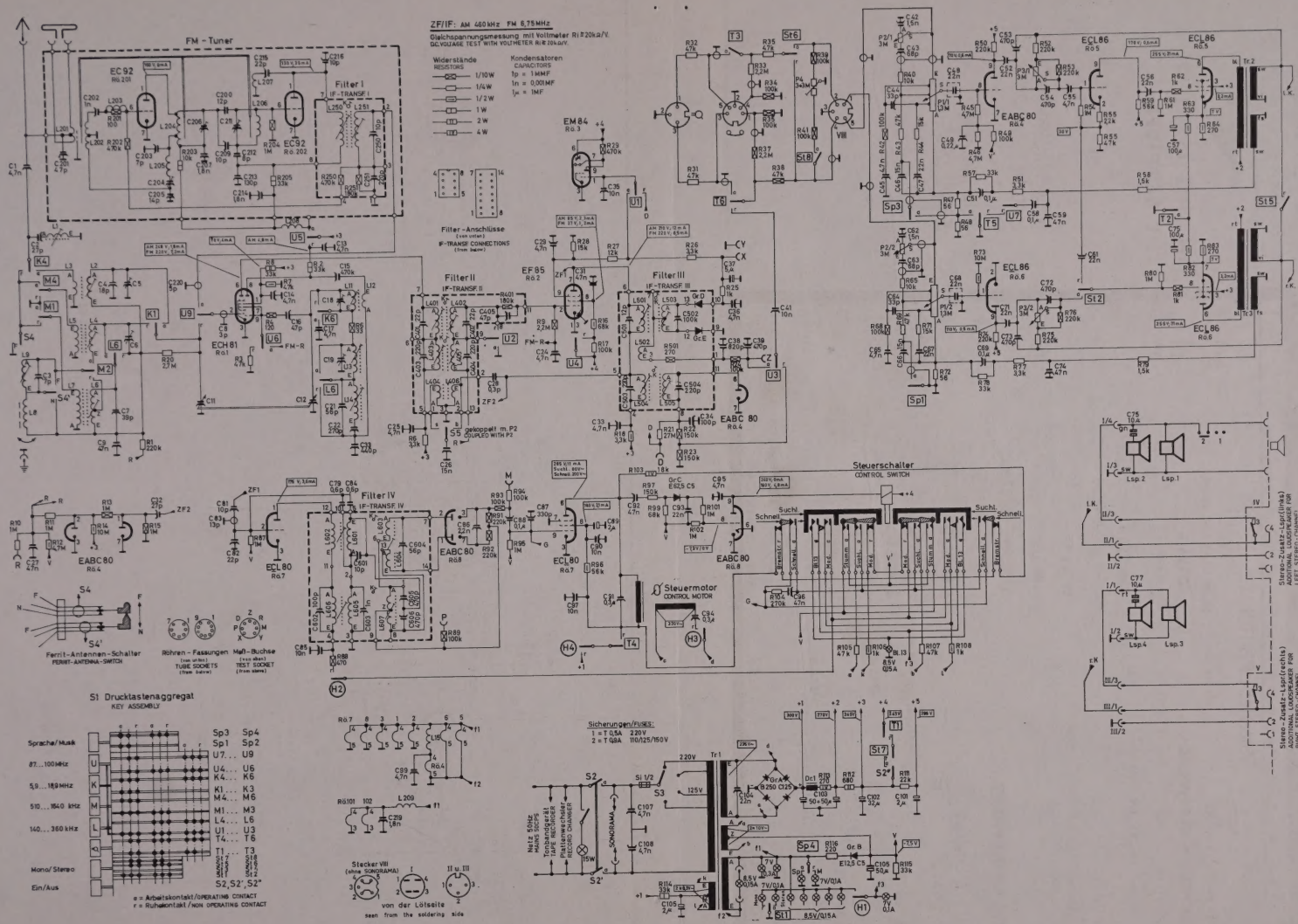
TRADE NAME AND MODEL	SET AND FOLDER NO.
TELEVISION RECEIVERS	
OLYMPIC	
Chassis JV, JVU, KV, KVU	555-1
PHILCO	
Chassis 11N53, 11N53U, 11N54, 11N56, 11N56U	555-2
OTHER EQUIPMENT	
ALTEC LANSING	
308A	555-3
BULOVA	
360 Series	555-4
CAPITOL	
124	555-5
COLUMBIA	
C1201, C1203	555-6
CORVAIR	
988468	555-7
EMERSON	
977 (Ch. 120528)	555-8
FISHER	
FM-200	555-9
GENERAL ELECTRIC	
RP1155A, RP1155C, RP1170A	555-10
MAGNAVOX	
AT-61	555-11
REALISTIC	
RP-30/50	555-12
H. H. SCOTT	
222B	555-13
TELECTRO (Tape Recorder)	
MR241, SR441, SS461	555-14

This Servicer provides you with essential data on other models or special equipment not covered in standard PHOTOFACT folders. The schematics and supplementary data included here will be of valuable help to you in servicing this equipment.

IN THIS ISSUE OF THE SERVICER:

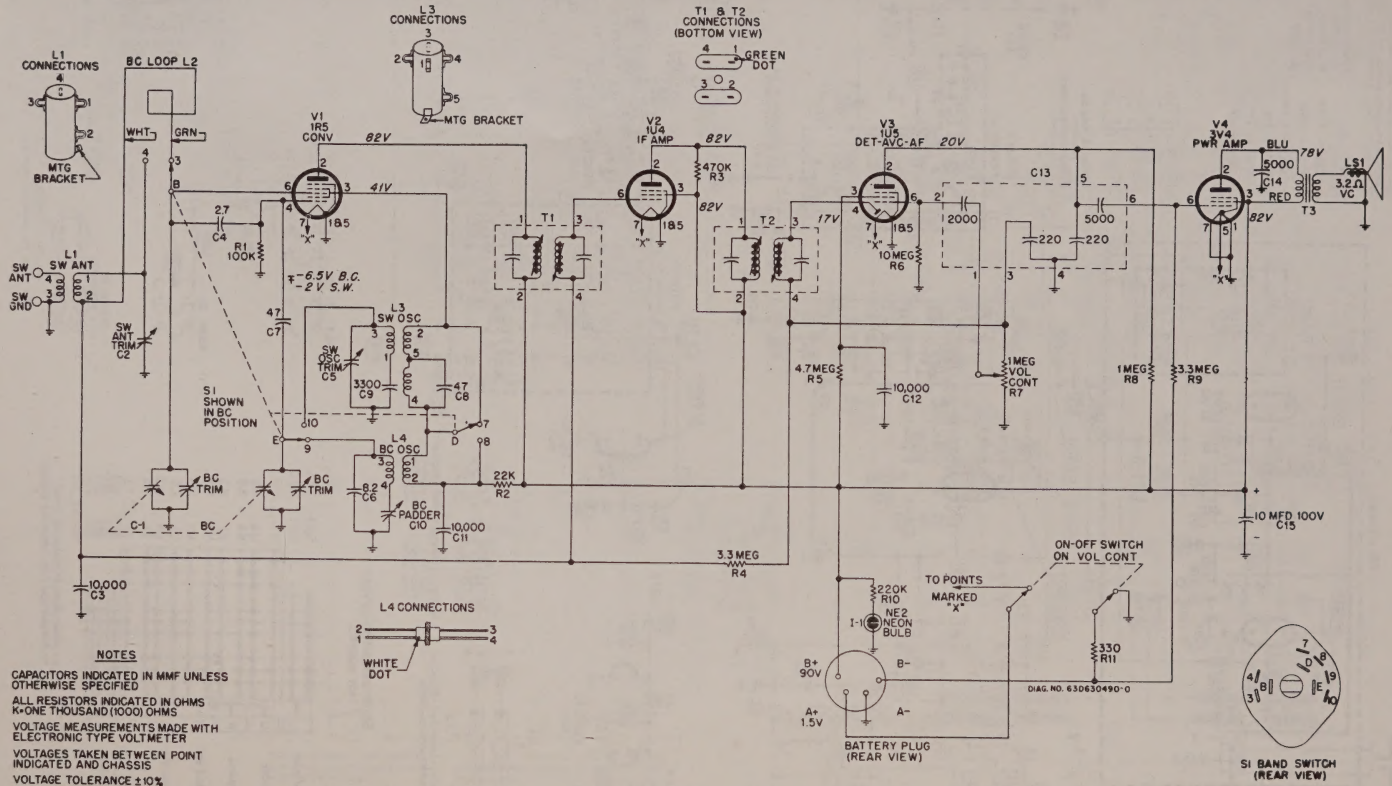
Motorola Model 42 BTS
(CH. HS-325)

Saba Model
300-125 CS



SABA MODEL 300-125CS

Schematic Diagram Courtesy of Saba: Importer A. E. Dufenhorst Company



NOTES

CAPACITORS INDICATED IN MMF UNLESS OTHERWISE SPECIFIED

ALL RESISTORS INDICATED IN OHMS K=ONE THOUSAND (1000) OHMS

VOLTAGE MEASUREMENTS MADE WITH ELECTRONIC TYPE VOLTMETER

VOLTAGES TAKEN BETWEEN POINT INDICATED AND CHASSIS

VOLTAGE TOLERANCE ±10%

NO SIGNAL INPUT

* MEASUREMENT MADE WITH GANG FULLY OPEN

MOTOROLA MODEL 42 BTS (CH. HS-325)

Schematic Diagram Courtesy of Motorola Inc.

PHOTOFACT® Folder

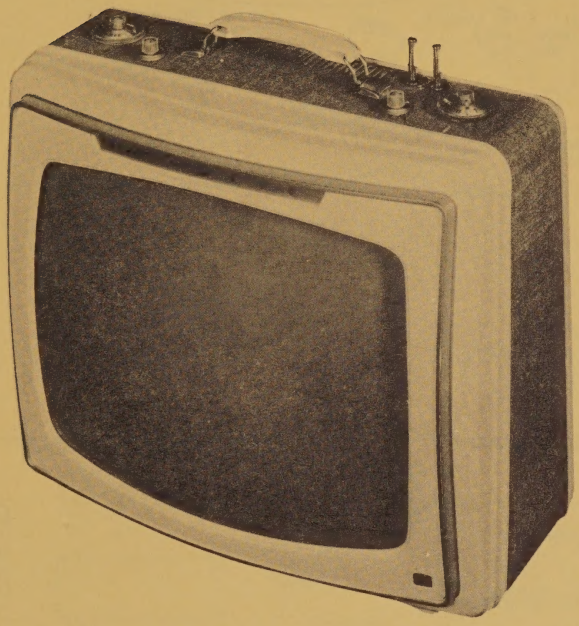
OLYMPIC CHASSIS
JV, JVU, KV, KVU

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

OLYMPIC CHASSIS
JV, JVU, KV, KVU



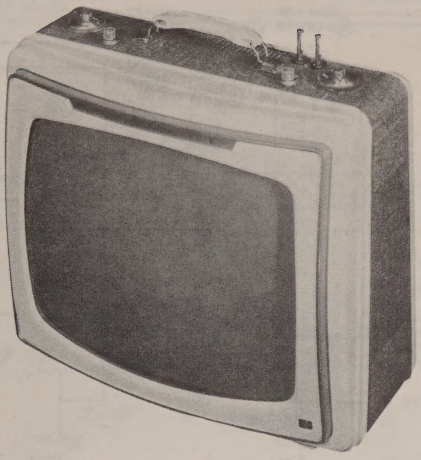
OLYMPIC CHASSIS
JV, JVU, KV, KVU

MODEL 9TV12 (CH. KV)

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

SET 555 FOLDER 1



MODEL 9TV12 (CH. KV)

TRADE NAME	OLYMPIC	MODEL	CHASSIS
		9TV12	JV (Late Production), KV
		9TV12 UHF	JVU (Late Production), KVU
MANUFACTURER	Olympic Radio & Television Inc., Div. of the Siegler Corp., 34-01 38th Avenue, Long Island City 1, N.Y.		
TYPE SET	Television Receiver		
TUBES	VHF - Fourteen, UHF - Fifteen		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING	VHF - 145 Watts, 1.5 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF,	Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)	

SERVICING IN THE FIELD

SAFETY GLASS

Safety glass (Pt. #PP27305) is held by 4 safety glass mounting bracket retainers.

FUSE

A ½ Amp. fuse is used for Sweep protection. (See "Tube Placement Chart" for location.)

A fuse wire is used for filament protection. (See M6 in Photo, Page 12 for location).

FUSE DEVICE

A 3.5Ω fusible resistor is used for low voltage power supply protection. (See R72 in Photo, page 12, for location).

TUNER OSCILLATOR ADJUSTMENT

To touch up the VHF Oscillator, remove Channel Selector and Fine Tuning knobs.

AGC

No provision is made to vary the AGC on this receiver.

FOCUS

The focus may be varied by connecting the lead from pin 4 of the picture tube to various voltage points. (See "TV Schematic".)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Coarse adjustment of the Horizontal Hold is accomplished by the proper setting of the Horizontal Frequency Slug (B1). (For location, see "Tube Placement Chart".)

HORIZONTAL DRIVE

The horizontal drive may be varied by a Horizontal Drive Trimmer. (For location, see "Tube Placement Chart".)

BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Quadrature Coil Slug (A5) for MINIMUM buzz and maximum sound. (For location, see "Tube Placement Chart".)

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

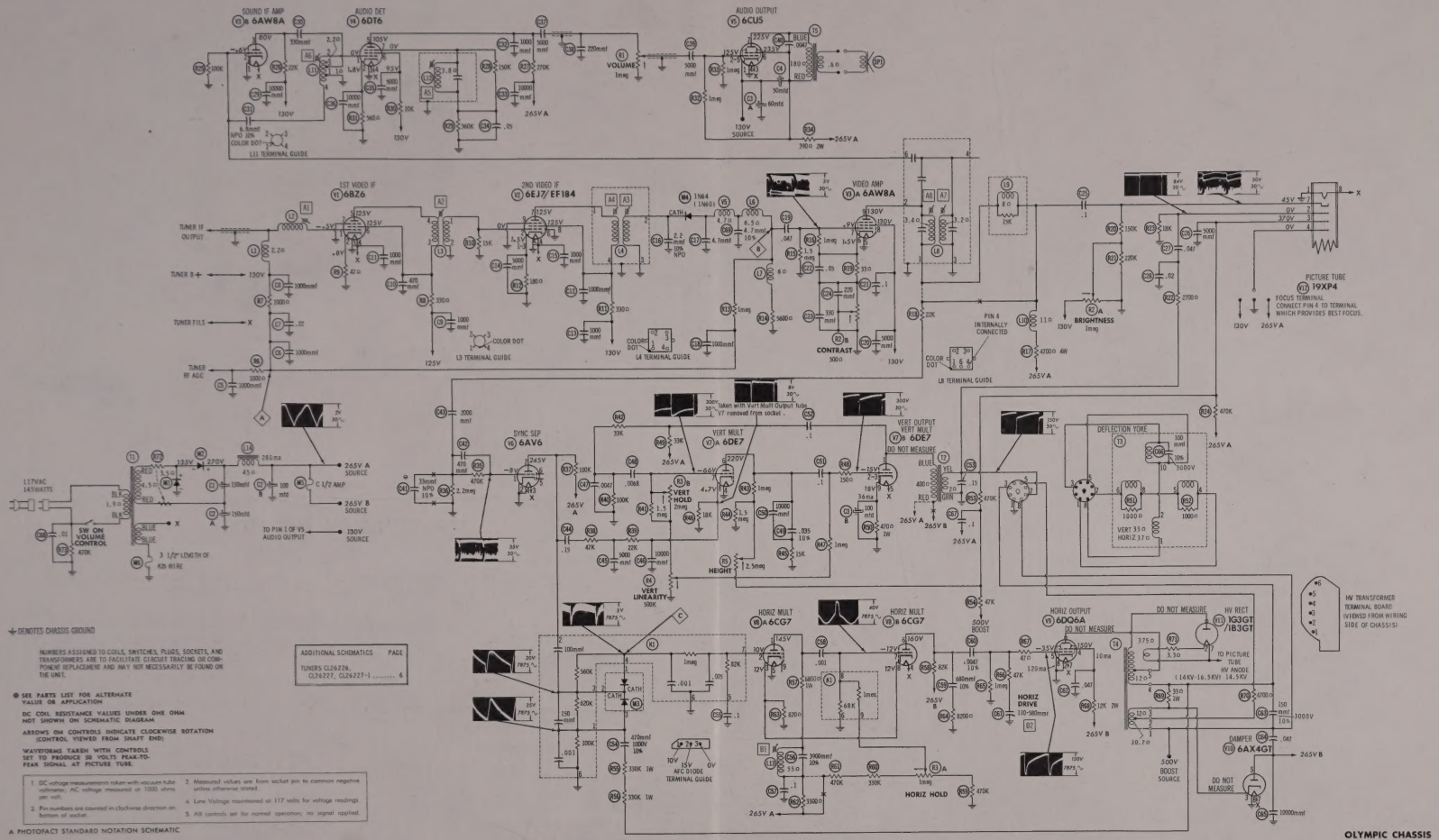
HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

LA047

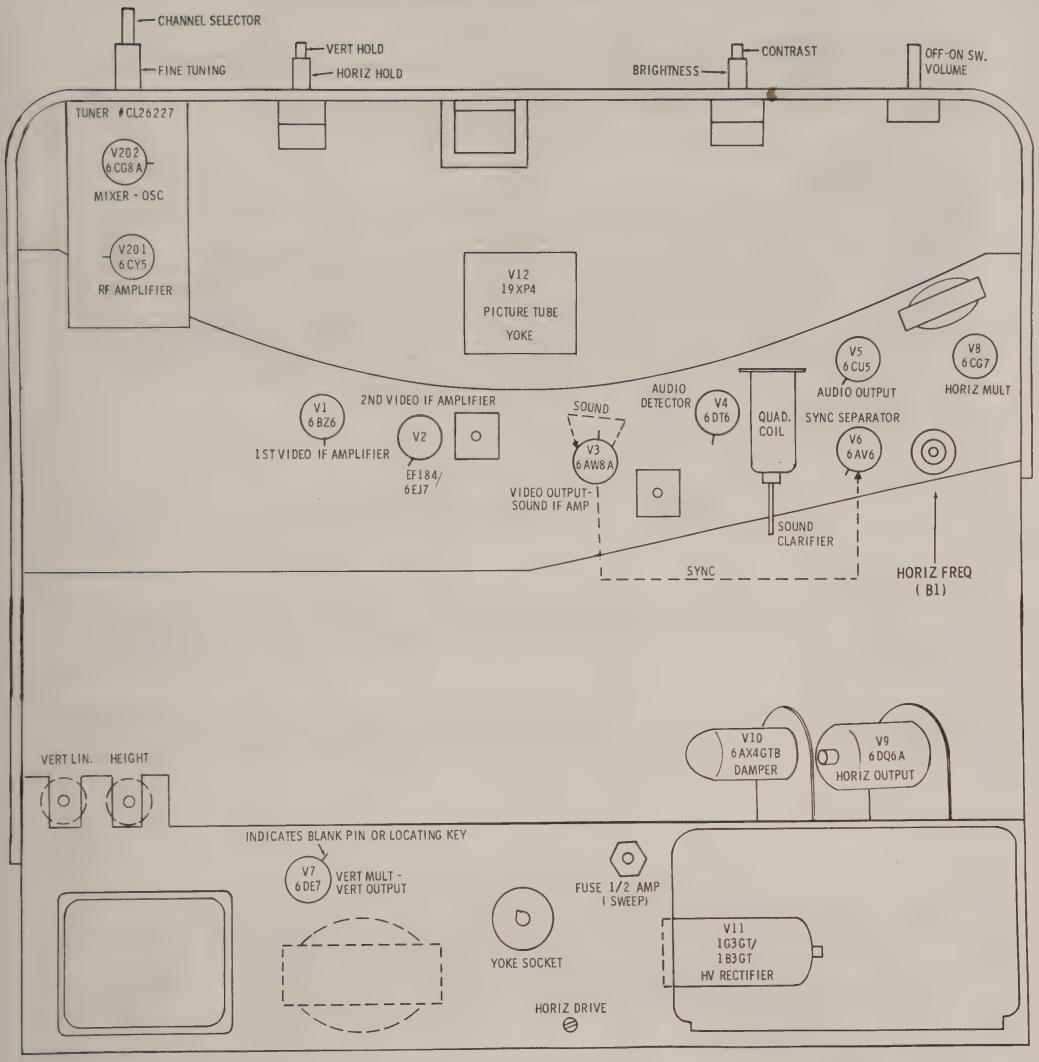
OLYMPIC CHASSIS
JV, JVU, KV, KVU

SET 555 FOLDER 1


SOUND IF AMP V3 B 6AW8A
AUDIO DET V4 6DT6
AUDIO OUTPUT V5 6CU5
VOLUME
1st VIDEO IF V1 6BZ6
2nd VIDEO IF V2 6EJ7/EF184
VIDEO AMP V3 A 6AW8A
CONTRAST
BRIGHTNESS
PICTURE TUBE V12 19XP4
FOCUS TERMINAL CONNECT PIN 4 TO TERMINAL WHICH PROVIDES BEST FOCUS.
PIN 4 INTERNALLY CONNECTED
SYNC SEP V6 6AV6
VERT MULT V7 A 6DE7
VERT OUTPUT VERT MULT V7 B 6DE7
DO NOT MEASURE
VERT HOLD
HEIGHT
VERT LINEARITY
DEFLECTION YOKE
HORIZ MULT V8 A 6CG7
HORIZ MULT V8 B 6CG7
HORIZ OUTPUT V9 6DQ6A
HV RECT V11 1G3GT /1B3GT
TO PICTURE TUBE HV ANODE (14KV-16.5KV) 14.5KV
HORIZ DRIVE
500V BOOST
DAMPER V10 6AX4GT
HORIZ HOLD
AFC DIODE TERMINAL GUIDE
HV TRANSFORMER TERMINAL BOARD (VIEWED FROM WIRING SIDE OF CHASSIS)
117VAC 145WATTS
SW ON VOLUME CONTROL
TO PIN 1 OF V5 AUDIO OUTPUT
3 1/2" LENGTH OF #26 WIRE
C 1/2 AMP
265V A SOURCE
265V B SOURCE
130V SOURCE
TUNER IF OUTPUT
TUNER B+
TUNER F1LS
TUNER RF AGC
COLOR DOT
L3 TERMINAL GUIDE
L4 TERMINAL GUIDE
L8 TERMINAL GUIDE
L11 TERMINAL GUIDE
DENOTES CHASSIS GROUND
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
SEE PARTS LIST FOR ALTERNATE VALUE ON APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line Voltage maintained at 117 volts for voltage readings
5. All controls set for normal operation; no signal applied.
ADDITIONAL SCHEMATICS PAGE
TUNERS CL26226, CL26227-1 6
A PHOTOFACT STANDARD NOTATION SCHEMATIC
©Howard W. Sams & Co., Inc. 1961

OLYMPIC CHASSIS
JV, JVU, KV, KVU

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Fuse Wire (F11.), Rectifiers M1, M2

SWEEP FAILURE
No raster, has sound Fuse ½A (Sweep), V8, V9, V10, V11, V12
No vertical deflection V7
Poor vert. linearity or foldover V7
Poor horiz. linearity or foldover V8, V9, V10
Narrow picture V8, V9, V10, M1, M2
Vert. off freq. V7
Horiz. off freq. Diode (Horiz. AFC), V8

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V5
No pic, no sound, has snow V201, V202
No pic, has sound, has raster V3, V12
Has pic, no sound V3, V4, V5

SYNC FAILURE
No vert. sync V6
No horiz. sync V6
No vert. or horiz. sync V6

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: Al thru A4, A7 and A8 ..... GENERAL CEMENT #8282, 8606, 8606L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A5 and A6 ..... GENERAL CEMENT #8721, 8722
WALSCO #2519

VIDEO IF ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Connect the negative lead of a 3 volt bias supply to point (A). Positive to chassis.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Place a thin insulated metal strip between the Mixer-Osc. tube and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	44MC (10MC Swp.)	43.25MC 45.75MC	Any non-interfering channel	Vert. Amp. thru Crystal Probe to pin 5 (plate) of 1st Video IF tube. Low side to chassis.	Mixer Plate Coil and Al	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
2.	"	"	44.5MC	"	Vert. Amp. to point (B). Low side to chassis.	A2	Adjust for maximum gain.
3.	"	"	43.25MC 45.75MC	"	"	A3, A4	Move both cores out to their respective ends of the coil form. Turn A3 in for maximum amplitude. Adjust A4 for response similar to Fig. 2. If necessary, retouch A2 and A3 to obtain desired response.

SOUND IF ALIGNMENT

Turn the set on and tune in a strong TV signal. Adjust A5 and A6 for maximum volume. Disconnect the antenna to provide a weak signal. If this does not provide enough signal to be heard, it may be necessary to insert an attenuator in series with the antenna and connect to the receiver antenna terminals. Adjust A7 and A8 for maximum volume. Connect the antenna direct for a strong signal and retouch A5 for maximum undistorted sound.

4.5MC TRAP ALIGNMENT

Tune in a strong TV signal and set Contrast at maximum. Adjust the Fine Tuning until a beat pattern is visible. Adjust A8 for MINIMUM beat interference.

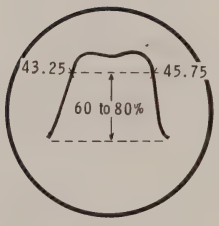


FIG. 1

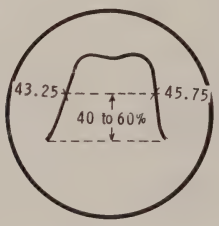
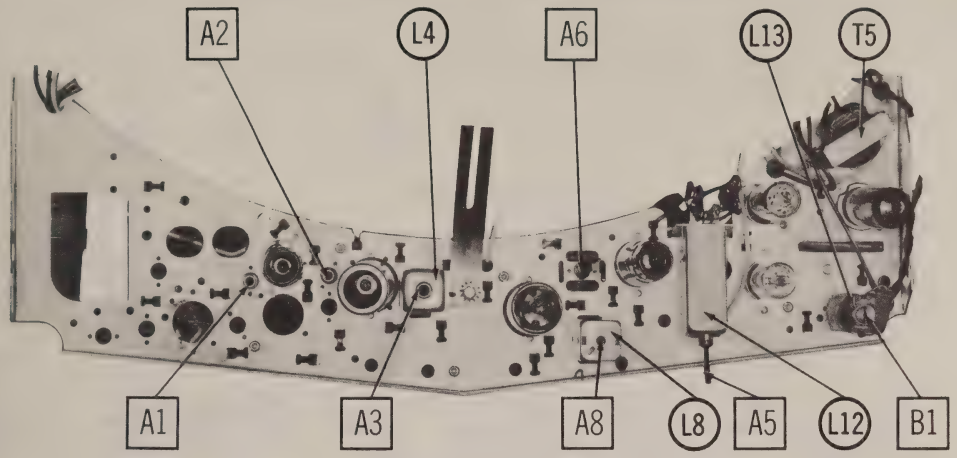
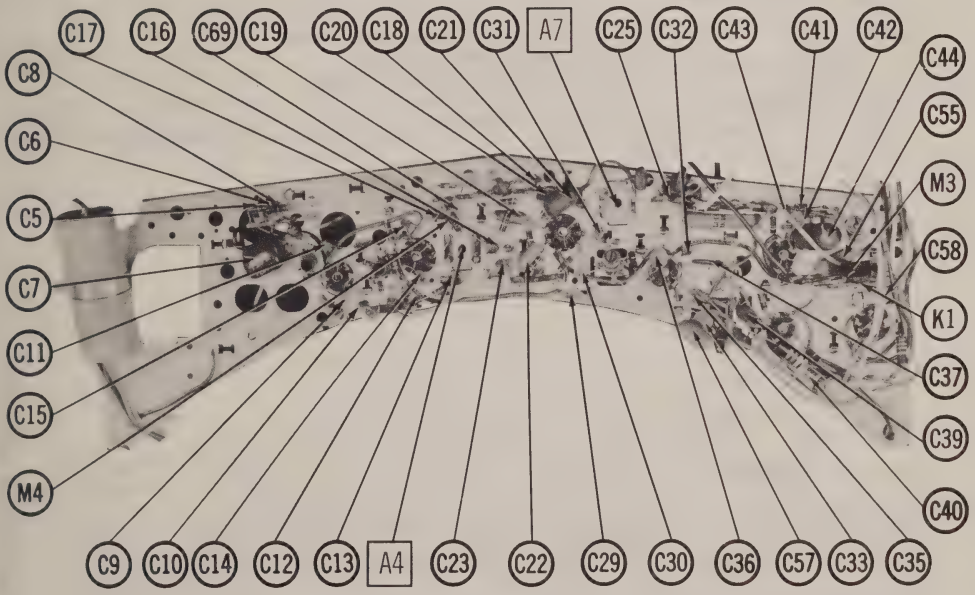


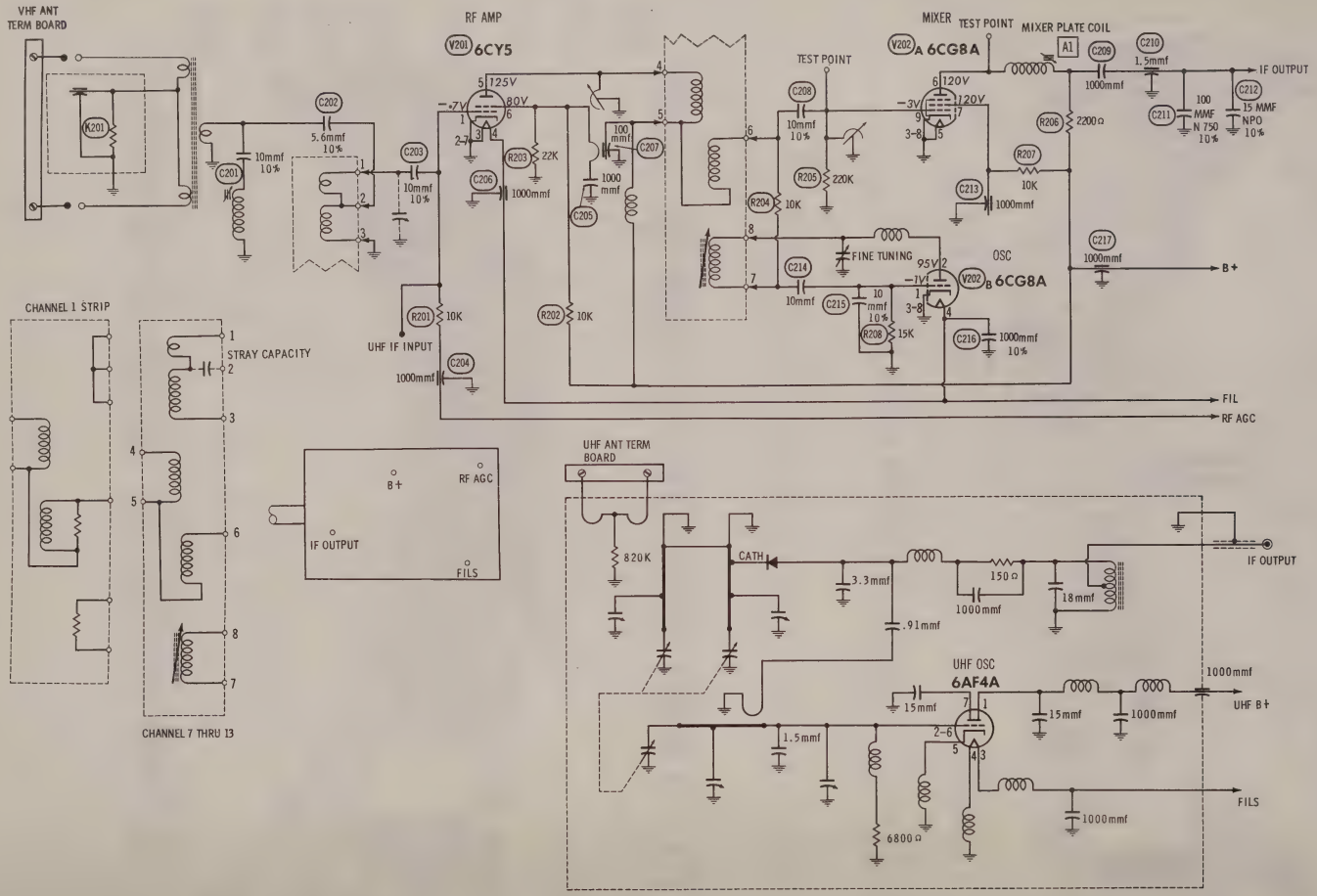
FIG. 2



UPPER CHASSIS - TOP VIEW



UPPER CHASSIS - BOTTOM VIEW ALIGN., CAPACITOR, MISC. IDENT.



A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1961

VHF TUNER CL26227

VHF Tuner with UHF Provisions CL26227-1, UHF Tuner CL26226

TUNER PARTS LIST AND DESCRIPTIONS

CL26227

TUBES

• GENERAL ELECTRIC •			• RAYTHEON •		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	6CY5	V202	Mixer - Osc.	6CG8A

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	10 10%		DI-10	DD-100	L10Q1	CCD-100	GP410	10TS-Q10
C202	5.6 10%							10TCC-V56
C203	10 10%		DI-10	DD-100	L10Q1	CCD-100	GP410	10TS-Q10
C204	.001		EF-001	MFT-1000		CCF-102	CT280A	
C205	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C206	.001		EF-001	MFT-1000		CCF-102	CT280A	
C207	100		EF-0001	MFT-100				
C208	10 10%		DI-10	DD-100	L10Q1	CCD-100	GP410	10TS-Q10
C209	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C210	1.5							
C211	100 N750 10%		N750-DI 100	DTN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C212	15 NPO 10%		NPO-DI 15	DTZ-15	C10Q15C	CCTO-150	CNO-415	10TCC-Q15
C213	.001		EF-001	MFT-1000		CCF-102	CT280A	
C214	10 10%		DI-10	DD-100	L10Q1	CCD-100	GP410	10TS-Q10
C215	10 10%		DI-10	DD-100	L10Q1	CCD-100	GP410	10TS-Q10
C216	.001		EF-001	MFT-1000		CCF-102	CT280A	
C217	.001		EF-001	MFT-1000		CCF-102	CT280A	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R201	10K				R205	220K			
R202	10K				R206	2200Ω			
R203	22K				R207	10K			
R204	10K				R208	15K			

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	OLYMPIC PART No.	REPLACEMENT DATA
K201	Antenna Filter			

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools: GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532

VHF OSCILLATOR ALIGNMENT

The individual channel adjustment screws are accessible one at a time thru a hole in the front of the tuner, as the Channel Selector is rotated. Set the Fine Tuning to the center of its range and switch to the channel to be adjusted. Adjust for best picture and sound.

VHF RF AND MIXER ALIGNMENT

This portion of the tuner has been properly aligned at the factory and is very stable. Alignment of this portion should not be attempted in the field.

UHF TUNER

This portion of the tuner has been properly aligned at the factory and is very stable. Alignment of this portion should not be attempted in the field.

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	GENERAL ELECTRIC • RAYTHEON • SYLVANIA • USE	TYPE	ITEM No.	USE	TYPE
V1	1st Video IF Amplifier	6BZ6	V6	Sync Separator	6AV6
V2	2nd Video IF Amplifier	6EJ7/EF184	V7	Vert. Mult. - Vert. Output	6DE7
V3	Video Output - Sound IF Amplifier	[illegible]	V8	Horiz. Mult.	6CG7
V4	Audio Detector	6BF6	V9	Horiz. Output	6DQ6A
V5	Audio Output	[illegible]	V10	Damper	6AX4GTB
			V11	HV Rectifier	1G3GT/1B3GT

PICTURE TUBE

ITEM No.	REPLACEMENT DATA: OLYMPIC PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
V12	19XP4	19XP4 ①	19XP4 ①		19XP4 ②	① Aluminized ② Silver Screen "85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP	VOLT	REPLACEMENT DATA: OLYMPIC PART No.	AEROVOX PART No.	CORNELL DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	150	200	CO-26294	PR1-100		QT1-25	TC692	TD-150-300	TVAS-1447 *
C2A	150	200	CO-26299	PR2-790	BBRD0286	QT4-1	TC692	CDB-D-1014	TVAS-2590 *
B	100	350					TC69[illegible]		
C3A	60	300	CO-26300	PR3-085	BBRD0576		WD540		TVA-2711
B	100	25							
C4	50	250	CO-2068-3	PR2585	BR5025	QT1-18	TC59	TD-50-450	TVA-1713

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

ITEM No.	RATING		REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	.001			BPD-001	DD-102	BYA[illegible]	CCD-102	B-210	5HK-D10
C6	.001			BPD-001	DD-102	BYA10D	CCD-102	B-210	5HK-D10
C7	.22	200V		P288N-22		[illegible]	4DP-4-224	GEM-2023	2TM-P23
C8	.001			BPD-001	DD-102	BYA[illegible]	CCD-102	B-210	5HK-D10
C9	.001			BPD-001	DD-102	BYA[illegible]	CCD-102	B-210	5HK-D10
C10	470			DI-470	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C11	.001			BPD-001	DD-102	BYA[illegible]	CCD-102	B-210	5HK-D10
C12	.001			BPD-001	DD-102	BYA[illegible]	CCD-102	B-210	5HK-D10
C13	.001			BPD-001	DD-102	BYA[illegible]	CCD-102	B-210	5HK-D10
C14	.005			BPD-005	DD-502	BYA[illegible]	CCD-502	B-250	5HK-D50
C15	.001			BPD-001	DD-102	BYA10D	CCD-102	B-210	5HK-D10
C16	2.7	NPO 10%		NPO-DI 2.7	DTZ-2R2	[illegible]	CCTO-2R2	CNO-522	10TCC-V22
C17	4.7			NPO-DI 4.7	TCZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C18	.001			BPD-001	DD-102	BYA10D	CCD-102	B-210	5HK-D10
C19	.047	400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-6147	4TM-S47
C20	.005			BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C21	.1	400V		P488N-1	DF-104	[illegible]	4DP-3-104	GEM-401	4TM-P10
C22	.05	50V		P288N-05	DD-503	[illegible]	1DP-2-503	GEM-415	2TM-S50
C23	330			DI-330	DD-331	L10T33	CCD-331	B-333	10TS-T22
C24	220	10%		DI-220	DD-221	L10T22	CCD-221	GP322	4TM-P10
C25	.1	400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C26	.005			BPD-005	DD-502	BYA[illegible]	CCD-502	B-250	5HK-D50
C27	.047	400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-6147	4TM-S47
C28	.02	600V		P688N-02	D6-203	[illegible]	4DP-2-203	GEM-612	4TM-S20
C29	.01			BPD-01	DD-103	[illegible]	CCD-103	B-110	5HK-S10
C30	330			DI-330	DD-331	[illegible]	CCD-331	B-333	10TS-T33
C31	6.8	NPO 10%		NPO-DI 6.8	DTZ-6R8	C10V68C	CCTO-6R8	CNO-568	10TCC-V68
C32	.001			BPD-001	DD-102	BYA10D	CCD-102	B-210	5HK-D10
C33	.01			BPD-01	DD-103	[illegible]	CCD-103	B-110	5HK-S10
C34	.05	50V		P288N-05	DD-503	CUB3S5	1DP-2-503	GEM-415	2TM-S50
C35	.005			BPD-005	DD-502	BYA[illegible]	CCD-502	B-250	5HK-D50
C36	.01			BPD-01	DD-103	BYA10S	CCD-103	B-110	5HK-S10
C37	.005			BPD-005	DD-502	[illegible]	CCD-502	B-250	5HK-D50
C38	220			DI-22[illegible]	DD-22[illegible]	L10T22	CCD-221	B-322	10TS-T22
C39	.005			BPD-005	DD-502	BYA[illegible]	CCD-502	B-250	5HK-D50
C40	.0047	600V		P668N-0047	D6-472	CUB4D47	4DP-1-472	GEM-6247	6TM-D47
C41	33	NPO 10%	Note 1	NPO-DI 33	DTZ-33	C10Q33C	CCTO-330	CNO-433	10TCC-Q33
C42	470			DI-470	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C43	.002			BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C44	.15	400V		P488N-15		CUB4P15	4DP-4-154	GEM-4015	4TM-P15
C45	.005			BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C46	.01			BPD-01	DD-103	[illegible]	CCD-103	B-110	5HK-S10
C47	.0047	600V		P668N-0047	D6-472	[illegible]	4DP-1-472	GEM-6247	6TM-D47
C48	.0068	600V		P668N-0068	D6-682	[illegible]	4DP-1-682	GEM-6268	6TM-[illegible]
C49	.035	600V 10%	#CO-0-6353C						6PS-S35
C50	.01			BPD-01	DD-103	[illegible]	CCD-103	B-110	5HK-S10
C51	.1	400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C52	.1	600V		P668N-1	DF-104	CUB6P1	6DP-3-104	GEM-601	6TM-P10
C53	.15	400V		P488N-15		CUB4P15	4DP-4-154	GEM-4015	4TM-P15
C54	470	1000V 10%		DI-470	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C55	.1	400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C56	.0039	10%		1469-0039			CM-20B-392K	MC1462.5	MS-239
C57	.1	400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C58	.001	600V		P668N-001	D6-102	[illegible]	6DP-1-102	GEM-631	6TM-D10
C59	680	10%		1469-0068		[illegible]	CM-19B-681K	MC1768	MS-[illegible]
C60	.0047	600V 10%		V84C6D47-10[illegible]		PM5D47	6DP-1-472	GEM-16247	5TM-D47
C61	10-580		#CT3526				6T7		
C62	.047	400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-6147	4TM-S47
C63	150	3000V 10%	#CO3830						
C64	.047	600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C65	.01			BPD-01	DD-103	BYA[illegible]	CCD-103	B-110	5HK-S10
C66	100	3000V 10%	#CO3781						
C67	.1	400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-6147	4TM-P10
C68	.01	600V		P668N-01	DF-104	[illegible]	6DP-2-103	GEM-611	6TM-S10
C69	4.7	10%		NPO-SI 4.7	TCZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47

Note 1. Not used in some versions. # Olympic Part Number.

CONTROLS

ITEM No.	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: OLYMPIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½	PT27050	AB-70	A47-1meg-Z	B13-137	U53	Volume
B	Shaft			AK-33	RS-3/16	SK9	DS-37	
C	Switch			KR-1	SWE-12	76-1	US-26	Power Off-On
R2A	1meg	½	PT26252	F1-51	[illegible]	[illegible]	[illegible]	Brightness
B	500Ω	½		R2-1	(RTV-722	†(GJ-1507	■(UE4176	Contrast
R3A	1meg	½	PT26230	F1-51	[illegible]	[illegible]	[illegible]	Horiz. Hold
B	2meg	½		R2-67	(RTV-721	†(GJ-1506	▲(UE4177	Vert. Hold
R4A	500K	½	PT25790	TT-59	B47-500K-S	Bil-133	PTA55L	Vert. Linearity
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	
R5	2.5meg	½	PT5008-1	TT-83	B47-2.5meg-S	BLC-2	TA35L	Height

† "CONCENTRIKIT" Equivalent: K-15 Kit with Base Elements and Shafts: Bil-137, P17-024 (Panel) (Not available as a factory assembled unit). Bil-103, R1-103 (Rear)

‡ "CONCENTRIKIT" Equivalent: K-15 Kit with Base Elements and Shafts: Bil-137, P17-034 (Panel) (Not available as a factory assembled unit). Bil-139, R1-103 (Rear)

■ "STA-LOC" Equivalent: FB16L, RU52L, OF8J2, LS125.

▲ "STA-LOC" Equivalent: FB16L, RU36L, OF8J2, LS135.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R6	1000Ω			
R7	1000Ω			
R8	330Ω			
R9	47Ω			
R10	15K			
R11	330Ω			
R12	180Ω			
R13	1meg			
R14	[illegible]			
R15	1.5meg			
R16	1meg			
R17	4700Ω 4W	PW4-4700	5W-SQ-4700	
R18	[illegible]			
R19	[illegible]			
R20	150K			
R21	220K			
R22	2700Ω			
R23	[illegible]			
R24	470K			
R25	100K			
R26	22K			
R27	270K			
R28	150K			
R29	560K			
R30	10K			
R31	560Ω			
R32	1meg			
R33	1meg			
R34	390Ω 2W			
R35	470K			
R36	2.2meg			
R37	100K			
R38	47K			
R39	22K			

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R40	100K			
R41	1.5meg			
R42	33K			
R43	1meg			
R44	1.5meg			
R45	15K			
R46	18K			
R47	1meg			
R48	150Ω			
R49	33K			
R50	470Ω 1W			
R51	1000Ω			
R52	1000Ω			
R53	470K			
R54	47K			
R55	330K 1W			
R56	330K 1W			
R57	6800Ω 1W			
R58	82K			
R59	470K			
R60	330K			
R61	470K			
R62	3300Ω			
R63	[illegible]			
R64	8200Ω			
R65	1meg			
R66	47K			
R67	47Ω			
R68	12K 2W			
R69	33Ω 1W			
R70	4700Ω			
R71	3.3Ω			
R72	3.5Ω †			#RE27133
R73	470K			

Olympic Part Number

† Fusible Type

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	OLYMPIC PART No.	REPLACEMENT DATA
K1	Horiz. AFC Circuit	100mmf, 150mmf, .001mfd, .001mfd, .005mfd, 68K, 82K, 100K, 560K, 820K, 1meg, 1meg	PC25716	Aerovox PA-724 Centralab PC-267

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: OLYMPIC PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	Peaking (36uh)	CLI535	TV-180	6176	RTC-8593	T301	
L2	1st Video IF	CL4753	TV-131	6236	RTC-8626	T218	
L3	2nd Video IF	CL4791	TV-130	6239	RTC-8651	T217	
L4	3rd Video IF	CL26953					
L5	RF Choke (1.7uh)	CK6225	BC-562	4604	RTC-8516	T856	
L6	Peaking (10uh)	CL28425	TV-194	6112	RTC-8574	T305	
L7	Peaking (16uh)	CL28426	TV-196	6120	RTC-8575	T306	
L8A	4.5MC Trap	TR3386-1					
B	1st Sound IF			6T7			
L9	Peaking (250uh)	CL3398 ①	TV-185 *	6181 *	RTC-8598 *	T315 *	① Wound on 15K Resistor. * Parallel with 15K Res.
L10	Peaking (500uh)	CL3814	TV-203	6174	RTC-8592	T324	
L11	2nd Sound IF	CL4021					
L12	Quadrature	CL3803-1	TV-124	1481	RTC-8606	T248	

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: OLYMPIC PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	Workman TV PART No.	NOTES
L13	Horiz. Stabilizer	CL5464-1	TV-163	6210	RTC-8622	HS-5	WLC-25	T103	

FILTER CHOKE

ITEM No.	RATINGS: CURRENT (Measured)	DC RES.	INDUCTANCE @ CURRENT 1000 ~	REPLACEMENT DATA: OLYMPIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L14	.280A	45Ω	.5 Hy.	CK26651		C-2343 ①		C-36X	① Drill saw mounting hole(s).

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA: OLYMPIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
	PRI.	SEC. 1	SEC. 2						
T1	117V ② 1.5A	115V ③ .030A AC	6.3V ③ 7.8A	TR-26214				R-124BC	

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: OLYMPIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	Vert. Output	TR-26216	A-2815 ①	VO-112	25S72	A-108X	
T3	Yoke (Horiz. 20MH) 114° (Vert. 30MH) Rear Cover and Centering Device	C1-26215		DY-46A	Y-53 ②	Y-84-1 ②	
T4	Horiz. Output	TR-26205	HVO-17L			D-207	

① Use 8 to 1 Turns Ratio.

② Use original yoke plug. Connect Yoke Terminal #2 to yoke plug pin #3; yoke #1 and #3 to plug pin #6; yoke #7 to plug #6; yoke #4 to plug #1; yoke #6 to plug #7.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	SEC.	REPLACEMENT DATA: OLYMPIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T5	2200Ω	3-4Ω	TR-5620-1	A-3025	A-3332	24S53	S-12X	

SPEAKER

ITEM No.	TYPE: SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA: OLYMPIC PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	SK25563	4A07	

POWER RECTIFIERS

ITEM No.	RATING: CURRENT (Measured)	REPLACEMENT DATA: OLYMPIC PART No.	RCA PART No.	SARKES TARZIAN PART No.	NOTES
M1	.280A	RF26235	1N1763	40H	
M2	.280A	RF26235	1N1763	40H	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA: OLYMPIC PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	NOTES
M3	1N64	RF5465 *	6GC1 *		* Dual Selenium Diode, Common Cathode Type. † Crystal Diode, Video Detector. † Crystal Diode, Alternate Video Detector.
M4		1N64 † 1N80 †		1N64 † 1N80 †	

PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			OLYMPIC PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M5	C	1/4A	FU26203		332.500	346002	C1/4	HC 3/10 to 1/2
M6	3 1/2"	length	#26 wire					

MISCELLANEOUS

ITEM No.	PART NAME	OLYMPIC PART No.	NOTES
M7	Tuner	CL26227	VHF, STANDARD COIL REPLACEMENT PART #GG-4220A
		CL26226	UHF
		CL26227-1	VHF with UHF Provisions
M8	Antenna		JFD REPLACEMENT TYPE #TA394 (VHF)
	Antenna		JFD REPLACEMENT TYPE #TA543 (UHF)

CABINETS & CABINET PARTS

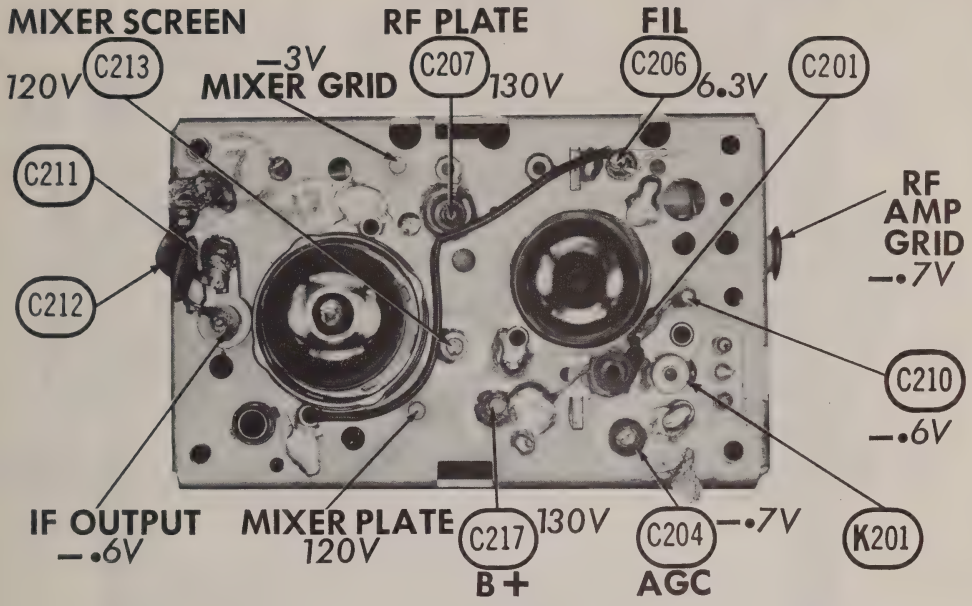
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

DESCRIPTION	PART NO.	MODEL NO. 9TV12	9TV12, UHF
Handle Assembly	HW26879-2	X	X
Cabinet-Mocha	CA27301-1	X	
Cabinet-Flame Red	CA27301-2	X	
Cabinet-Blue	CA27301-3	X	
Cabinet-Charcoal	CA27301-4		X
Cabinet-Mocha	CA27301-5		X
Cabinet-Flame Red	CA27301-6		X
Cabinet-Blue	CA27301-7		X
Cabinet-Charcoal	CA27301	X	

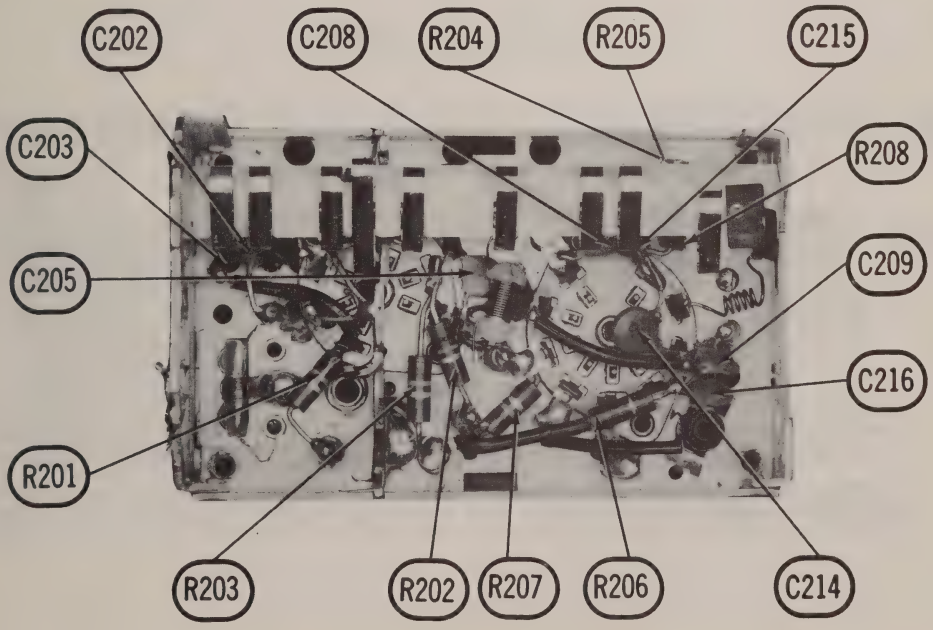
DESCRIPTION	PART NO.	MODEL NO. 9TV12	9TV12, UHF
Knob-VHF Channel Selector	KN26882	X	
Knob-VHF Channel Selector	KN26888		X
Knob-UHF Channel Selector	KN26890-1		X
Knob-UHF Tuning Indicator	KN26891-1		X
Knob-Fine Tuning	KN26881	X	X
Knob-Brightness	KN26942	X	X
Knob-Volume	KN26887	X	X
Knob-Horizontal Hold	KN26883	X	X
Knob- V. Hold, Contrast	KN26884	X	X

WIRING DATA

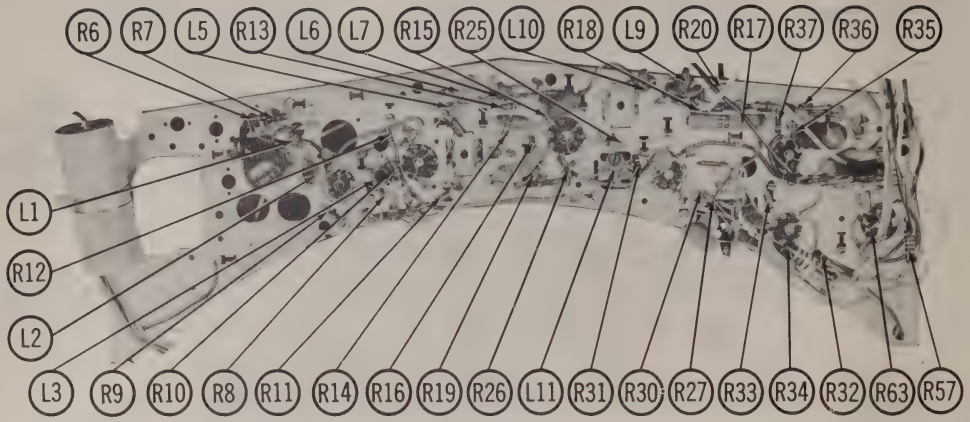
High Voltage Lead	Use BELDEN No.	8869
Shielded Hook-up Wire	Use BELDEN No.	8885 (Single Conductor)
		8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors
		8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No.	8874
300Ω Tuner Input Lead	Use BELDEN No.	8225
300Ω Antenna Lead-in	Use BELDEN No.	8230 or 8275
Antenna Rotor Cable	Use BELDEN No.	8464 (Flat) or 8484 (Round) - 4 Conductor
		8485 (Round) - 5 Conductor
		8488 (Round) - 8 Conductor



TUNER CL26227 - TOP VIEW

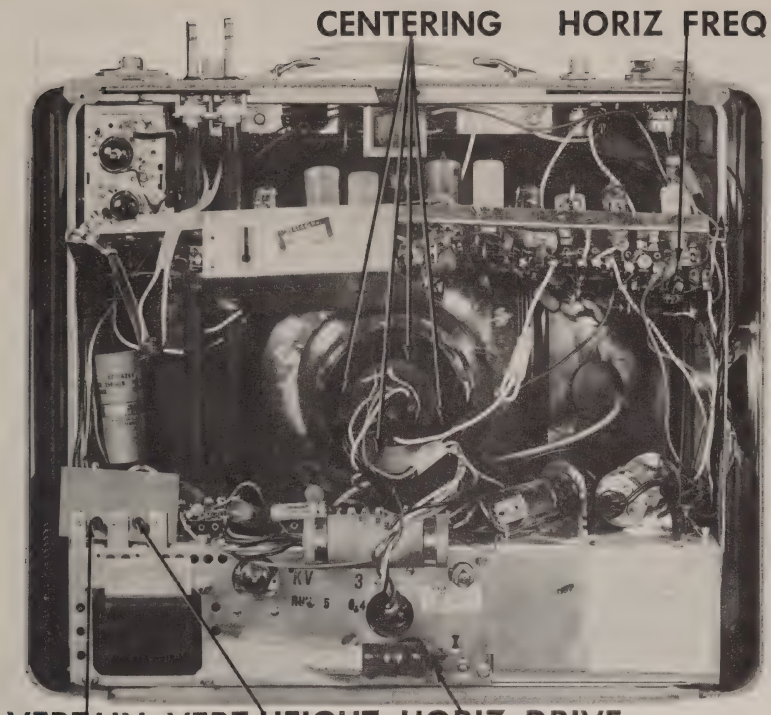


TUNER CL26227 - BOTTOM VIEW



UPPER CHASSIS - BOTTOM VIEW RESISTOR, INDUCTOR IDENT.

LOWER CHASSIS - FRONT VIEW



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and allow it to warm up for 2 minutes. Tune in a TV station, preferably with a test pattern.

Connect a clip lead from point Ⓒ to chassis. Connect another clip lead across the Horizontal Stabilizer Coil (L13).

Adjust the Horizontal Hold until the picture synchronizes horizontally. (It may float back and forth.)

Remove the clip lead from L13. Adjust the Horizontal Frequency slug (B1) until the picture is again in frequency. Remove clip lead from point Ⓒ and chassis.

Turn Horizontal Drive Trimmer (B2) counterclockwise until a vertical white line (drive line) appears near the center of the screen, then turn clockwise until line just disappears. If drive line cannot be obtained, adjust B2 for proper width.

If B2 is adjusted, recheck adjustment of B1 and Horizontal Hold.

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 7 push-on type knobs on top of cabinet.
2. Remove 6 screws holding rear cover. Remove rear cover.
3. Remove 3 chassis bolts and 2 bracket bolts on control panel.
4. Disconnect picture tube socket, yoke plug, and speaker leads.
5. Pull chassis out from bottom and remove.

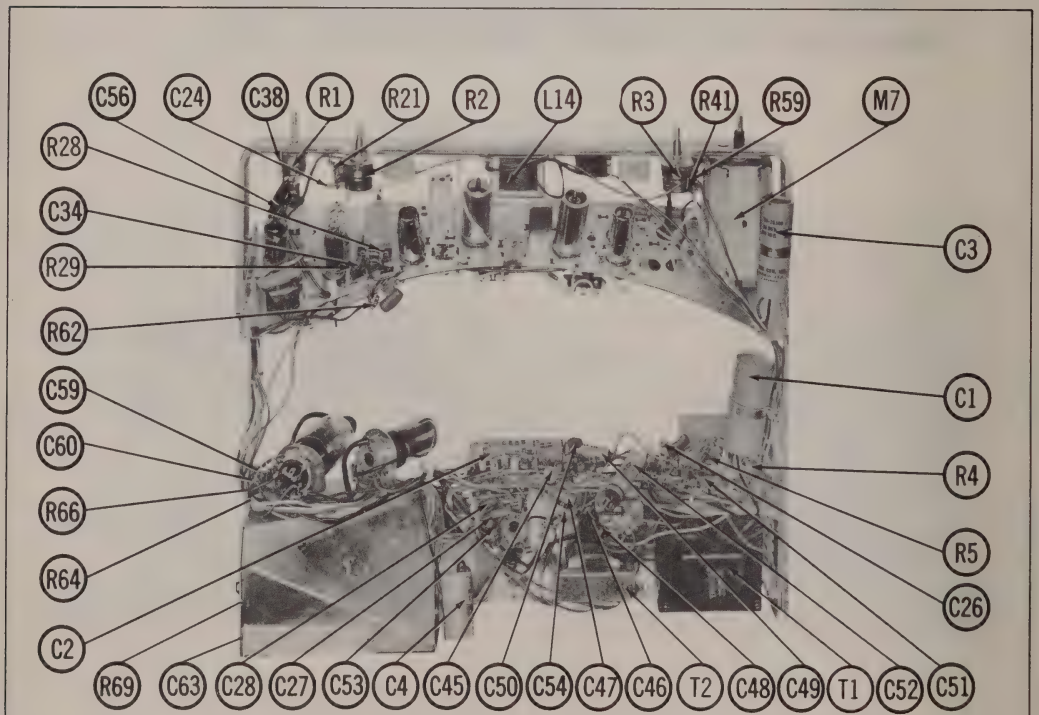
PICTURE TUBE REMOVAL

It is necessary to remove the chassis for picture tube removal.

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	1meg	47Ω	FIL	FIL	▪330Ω	▪330Ω	0Ω		
V2	EF184/ 6EJ7	180Ω	.1Ω	180Ω	FIL	FIL	0Ω	▪330Ω	▪330Ω	0Ω
V3	6AW8A	0Ω	100K	▪22K	FIL	FIL	•60Ω	620K	▪0Ω	†4700Ω
V4	6DT6	3Ω	560Ω	FIL	FIL	†270K	▪10K	560K		
V5	6CU5	¶ 30K	500K	FIL	FIL	500K	†435Ω	†615Ω		
V6	6AV6	2.7meg	0Ω	FIL	FIL	NC	NC	†100K		
V7	6DE7	†445Ω	NC	•1.2meg	FIL	FIL	• †1.6meg	• 1meg	18K	470Ω
V8	6CG7	†10K	1.2meg	820Ω	FIL	FIL	†82K	68K	820Ω	NC
V9	6DQ6A	TP	FIL	TP	†12K	1meg	NC	FIL	0Ω	TOP CAP †45Ω
V10	6AX4GTB	NC	NC	650K	NC	†45Ω	NC	FIL	FIL	
V11	1G3GT 1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP †410Ω
V12	19XP4	FIL	18K	†450K	0Ω	NC	NC	• 280K	FIL	
V201	6CY5	1meg	0Ω	FIL	FIL	▪0Ω	▪9000Ω	0Ω		
V202	6CG8A	15K	▪10K	0Ω	FIL	FIL	▪2200Ω	▪10K	0Ω	220K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM OUTPUT OF M2. ▪ MEASURED FROM PIN 1 OF V5.
† MEASURED FROM PIN 3 OF V10. NC NO CONNECTION TP TIE POINT



CHASSIS—FRONT VIEW

PHOTOFACT® Folder with CIRCUITRACE®

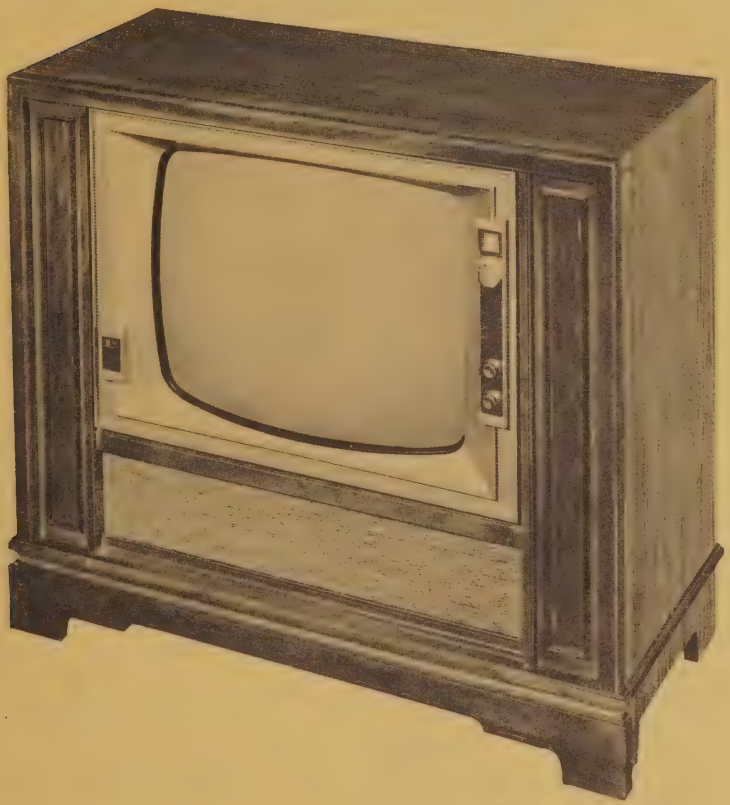
PHILCO CHASSIS 11N53, 11N53U, 11N54, 11N56, 11N56U

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

PHILCO CHASSIS 11N53, 11N53U, 11N54, 11N56, 11N56U



MODEL J4818M

PHILCO CHASSIS 11N53, 11N53U, 11N54, 11N56, 11N56U

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

SET 555 FOLDER 2

PHILCO CHASSIS 11N53, 11N53U, 11N54, 11N56, 11N56U

PHILCO CHASSIS 11N53, 11N53U, 11N54, 11N56, 11N56U

MODEL J4818M

TRADE NAME	PHILCO MODELS	TV Chassis (Run 1 thru 7)	
	J4816M, W; J4818M; J4819L, W	11N53	
	UJ4816M, W; UJ4818M; UJ4819L, W; UJ4824P; UJ4826W; UJ4828M, WD; UJ4838W	11N53U	
	J4824P; J4826W; J4828M, WD; J4838W	11N54	(With Provisions for RC-55A Remote Control)
	J4904M, W	11N56	(With Audio Amp. J-4904, and Reverb. Amp. SPR-3, provisions for FM-AM Tuner RT-300 * or RT-400 *, and provisions for RC-55A Remote Control)
	UJ4904M, W	11N56U	

MANUFACTURER — Philco Corp., Tioga & "C" Streets, Philadelphia, Pennsylvania

TUBES — TV: VHF - Sixteen, UHF - Seventeen (11N56 Chassis-Fifteen, 1156U Chassis-Sixteen)
Remote Control Receiver: Six Audio Amp. Chassis: Five Reverb. Chassis: Five

POWER SUPPLY — 110-120 Volts AC, 60 Cycle RATING TV Chassis 11N53: 170 Watts, 1.6 Amp. @ 117 Volts AC

TUNING RANGE — Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

*FOR SERVICE INFORMATION ON FM-AM TUNER RT-300 - SEE PHOTOFACT SET 510 FOLDER 15.
FOR SERVICE INFORMATION ON FM-AM TUNER RT-400 - SEE PHOTOFACT SET 519 FOLDER 10.

SERVICING IN THE FIELD

SAFETY GLASS

The safety glass is an integral part of the picture tube.

FUSE

A fuse wire is used for filament protection. (For location, see M3, page 15 in Photo "Chassis - Bottom View".)

FUSE DEVICE

A 5.6Ω fusible resistor is used for low voltage power supply protection. (For location, see "Tube Placement Chart".)

AGC

No provision is made to vary the AGC on this receiver.

FOCUS

The focus may be varied by connecting the lead from pin 4 of the picture tube to various voltage points. (See TV Schematic).

VHF OSCILLATOR ADJUSTMENT

To touch up the VHF Oscillator, remove Channel Selector and Fine Tuning knobs.

SYNC STABILITY

Sync Stability may be varied by means of a Noise Adjust control. (For location, see "Tube Placement Chart".)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

See "Horizontal Sweep Circuit Adjustments" on back page.

WIDTH

The width may be varied by a Width control. (For location, see "Tube Placement Chart".)

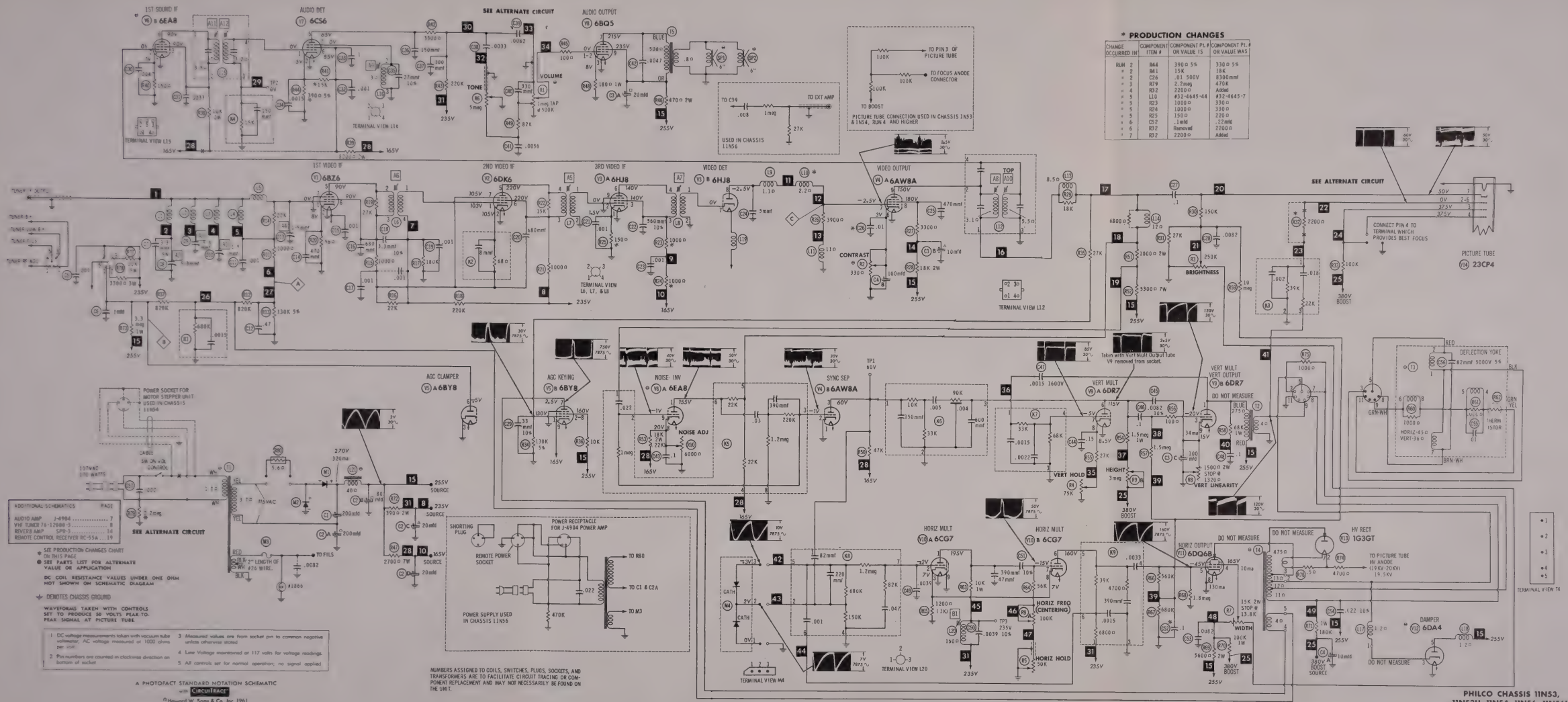
CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

LA094



* PRODUCTION CHANGES

CHANGE OCCURRED IN	COMPONENT ITEM #	COMPONENT Pt. # OR VALUE IS	COMPONENT Pt. # OR VALUE WAS
RUN 2	R44	390Ω 5%	330Ω 5%
" 2	R41	15K	18K
" 2	C26	.01 500V	8300mmf
" 3	R79	2.2meg	470K
" 4	R32	2200Ω	Added
" 5	L10	#32-4645-44	#32-4645-7
" 5	R23	1000Ω	330Ω
" 5	R24	1000Ω	330Ω
" 5	R25	150Ω	220Ω
" 6	C52	.1mfd	.22mfd
" 6	R32	Removed	2200Ω
" 7	R32	2200Ω	Added

ADDITIONAL SCHEMATICS	PAGE
AUDIO AMP J-4904	7
VHF TUNER 76-12000-5	8
REVERB AMP SPP-5	16
REMOTE CONTROL RECEIVER RC-55A	19

- SEE PRODUCTION CHANGES CHART ON THIS PAGE
- SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

⏚ DENOTES CHASSIS GROUND

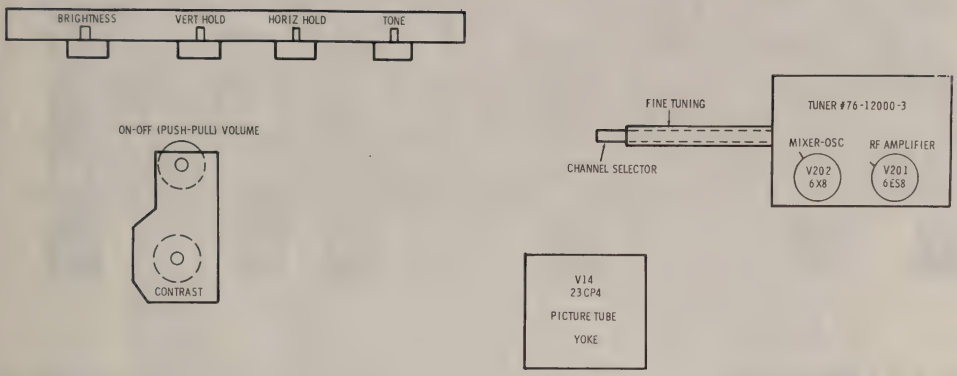
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE

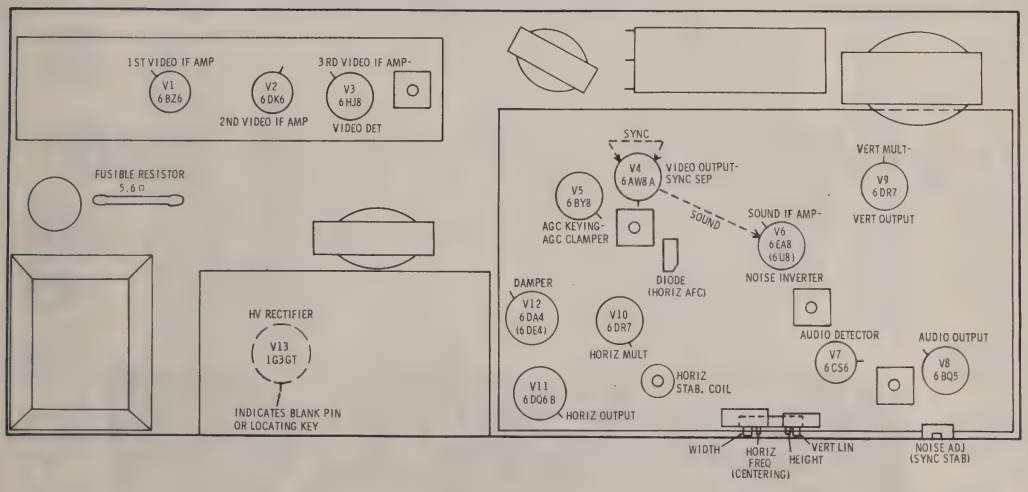
1. DC voltage measurements taken with vacuum tube voltmeter, AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, no signal applied.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE
© Howard W. Sams & Co., Inc. 1961

TUBE PLACEMENT CHART





TUBE FAILURE CHECK CHART

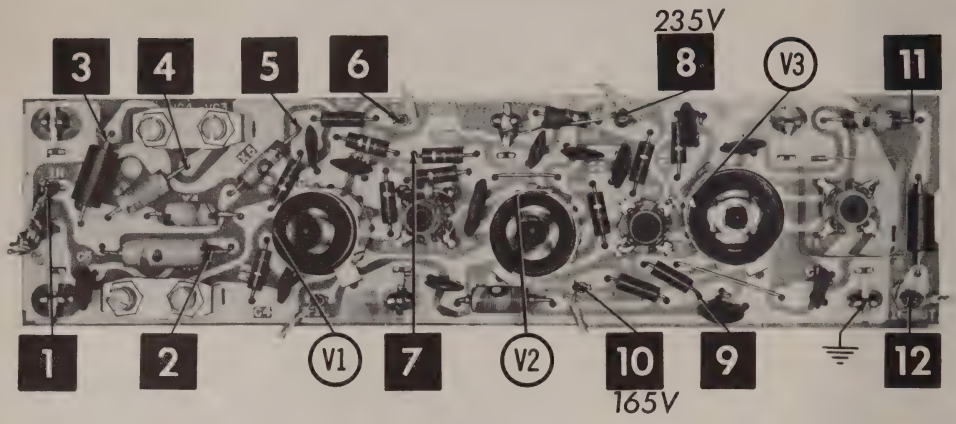
The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Fusible Resistor; Rectifier M1, M2; Fuse Wire (F1l.)

SWEEP FAILURE
No raster, has sound V10, V1l, V12, V13, V14
No vertical deflection V9
Poor vert. linearity or foldover V9
Poor horiz. linearity or foldover V10, V1l, V12
Narrow picture V10, V1l, V12, M1, M2
Vert. off freq. V9
Horiz. off freq. Diode (Horiz. AFC), V10

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V14
Has pic, no sound V6, V7, V8
Overloaded picture V5

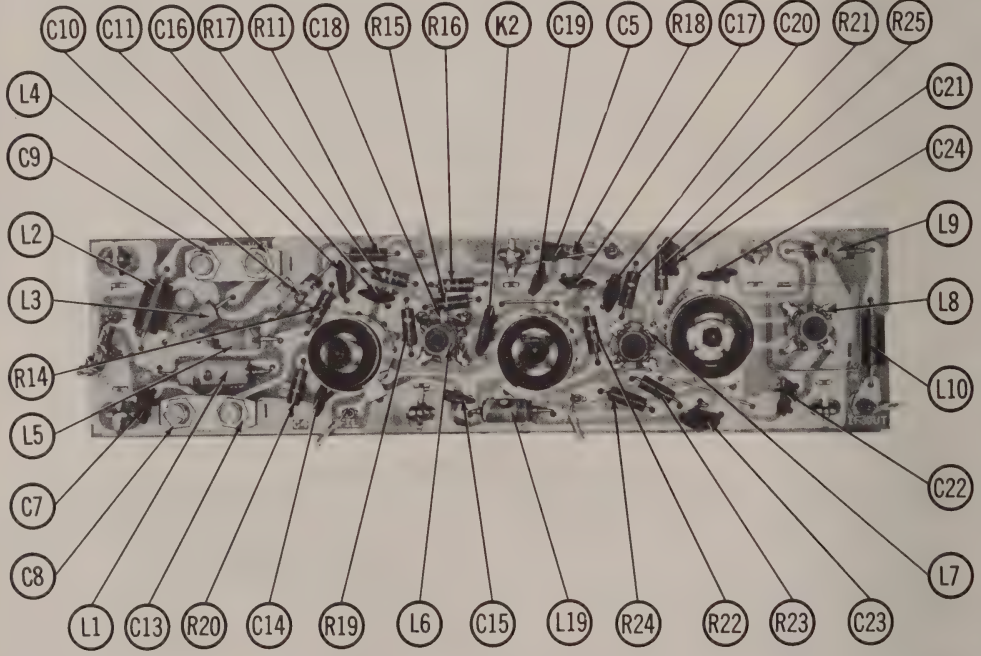
SYNC FAILURE
No vert. sync V4
No horiz. sync V4
No vert. or horiz. sync V4



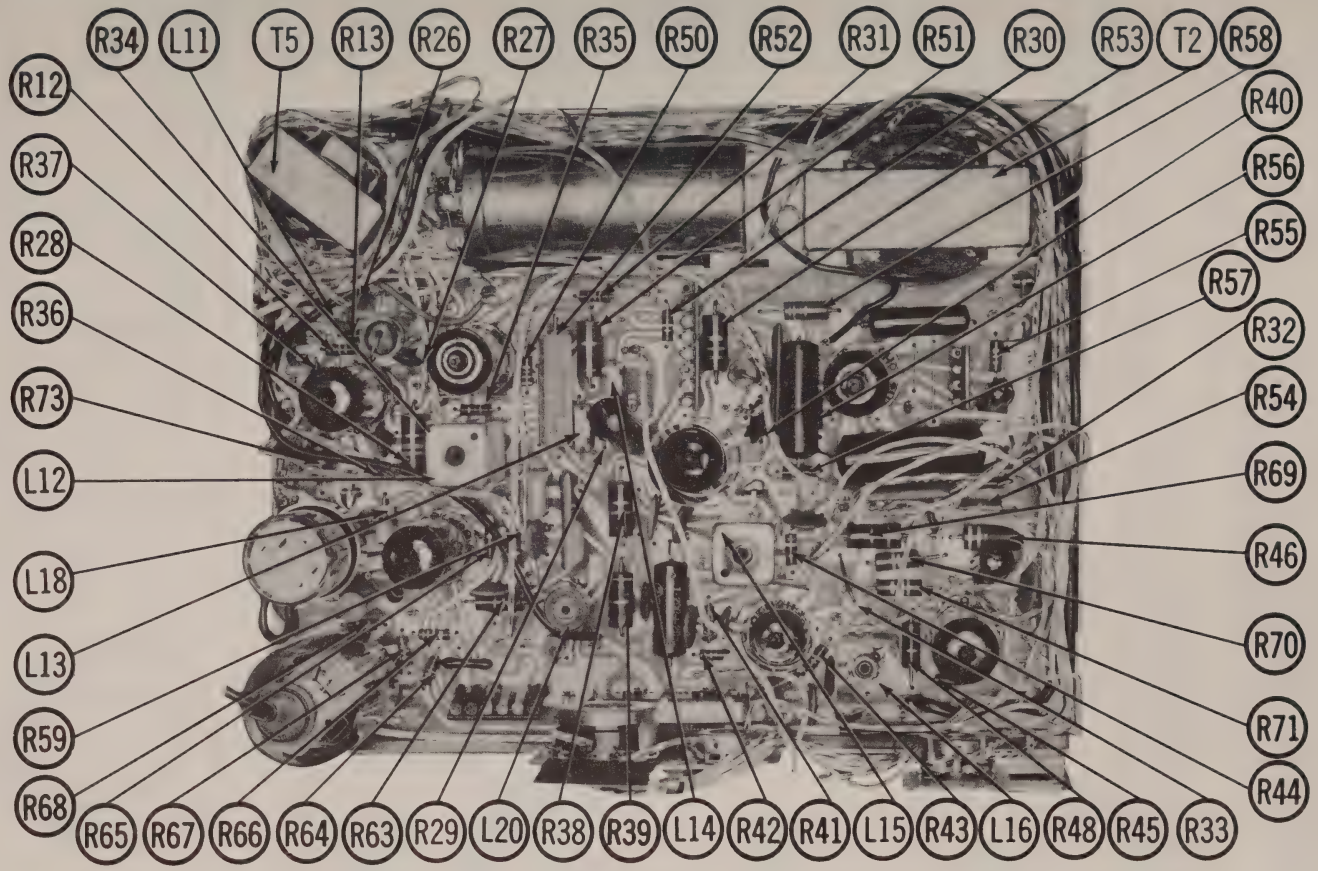
A Howard W. Sams CIRCUITRACE Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

VIDEO IF PRINTED BOARD



VIDEO IF PRINTED BOARD



VIDEO OUTPUT, SOUND, SYNC, SWEEP PRINTED BOARD
RESISTOR, INDUCTOR, TRANSFORMER IDENT.

ALIGNMENT INSTRUCTIONS
TV

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A1 thru A4, A18 . . GENERAL CEMENT #5000, 5003, 5014, 5015, 5016, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537
A5 thru A17 . . . . GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Connect the negative lead of a 6 volt bias supply to point (A) . Positive to chassis.
Connect the negative lead of a 3 volt bias supply to point (B) . Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough generator output to provide a usable indication on VTVM.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	Place a thin insulated metal strip between the Mixer-Osc. tube (V202), and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	Not used	45.8MC (400∿ AM Mod)	Any non-interfering channel	Vert. Amp. thru 10K to point (C). Low side to chassis. (Across Video Det. load)	Mixer Plate Coil	Adjust for maximum on scope.
2.	"	"	"	41.25MC	"	"	A1	Adjust for MINIMUM on scope.
3.	"	"	"	47.25MC	"	"	A2, A3	"
4.	"	"	"	42.75MC	"	"	A4, A5	Adjust for maximum on scope.
5.	"	"	"	45.0MC	"	"	A6	"
6.	"	"	"	44.4MC	"	"	A7	"
7.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	"	65.75MC	4	"	Fine Tuning	Adjust for MINIMUM on scope. Leave Fine Tuning at this setting.
8.	"	"	69MC (10MC Swp)	42.75MC 45.75MC	"	"		Use only enough sweep generator output to provide a usable pattern on scope. Check for response similar to Fig. 1. If necessary, retouch Mixer Plate Coil and A4 thru A7 for desired response. Position 45.75MC marker with Mixer Plate Coil and A6. Position 42.75MC marker with A4 and A5. Flatten curve with A7.

4.5MC TRAP ALIGNMENT

Use a 4.5MC tuned detector similar to Fig. 2. Before aligning trap, connect the detector to an accurate source of 4.5MC signal and adjust the coil slug for maximum DC voltage output. Set Contrast fully clockwise.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
9.	.001mfd	High side to point (C). Low side to chassis.	4.5MC (400∿ 30% AM)	Any non-interfering channel	DC probe thru detector (Fig. 2) to pin 7 (cathode) of picture tube. Common to chassis.	A8	Adjust for MINIMUM deflection.

SOUND IF ALIGNMENT

Tune in a TV station, disconnect the antenna and adjust the Fine Tuning for best picture. DO NOT readjust Fine Tuning during balance of alignment.
Connect antenna and adjust A9 for maximum sound. Connect the DC probe of a VTVM thru 10K to TP-2. Common to chassis.
Using a weak station signal (with antenna disconnected), adjust A10, A11 and A12 for maximum deflection.
If necessary, retouch SLIGHTLY A10, A11 and A12 to remove intercarrier buzz or noise interference. (DO NOT CHANGE more than 1/4 turn.)

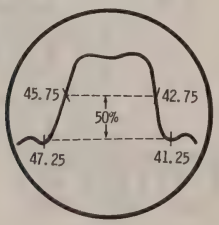


FIG. 1

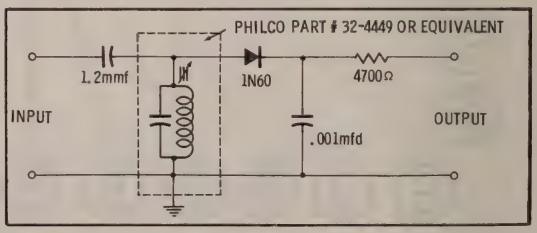
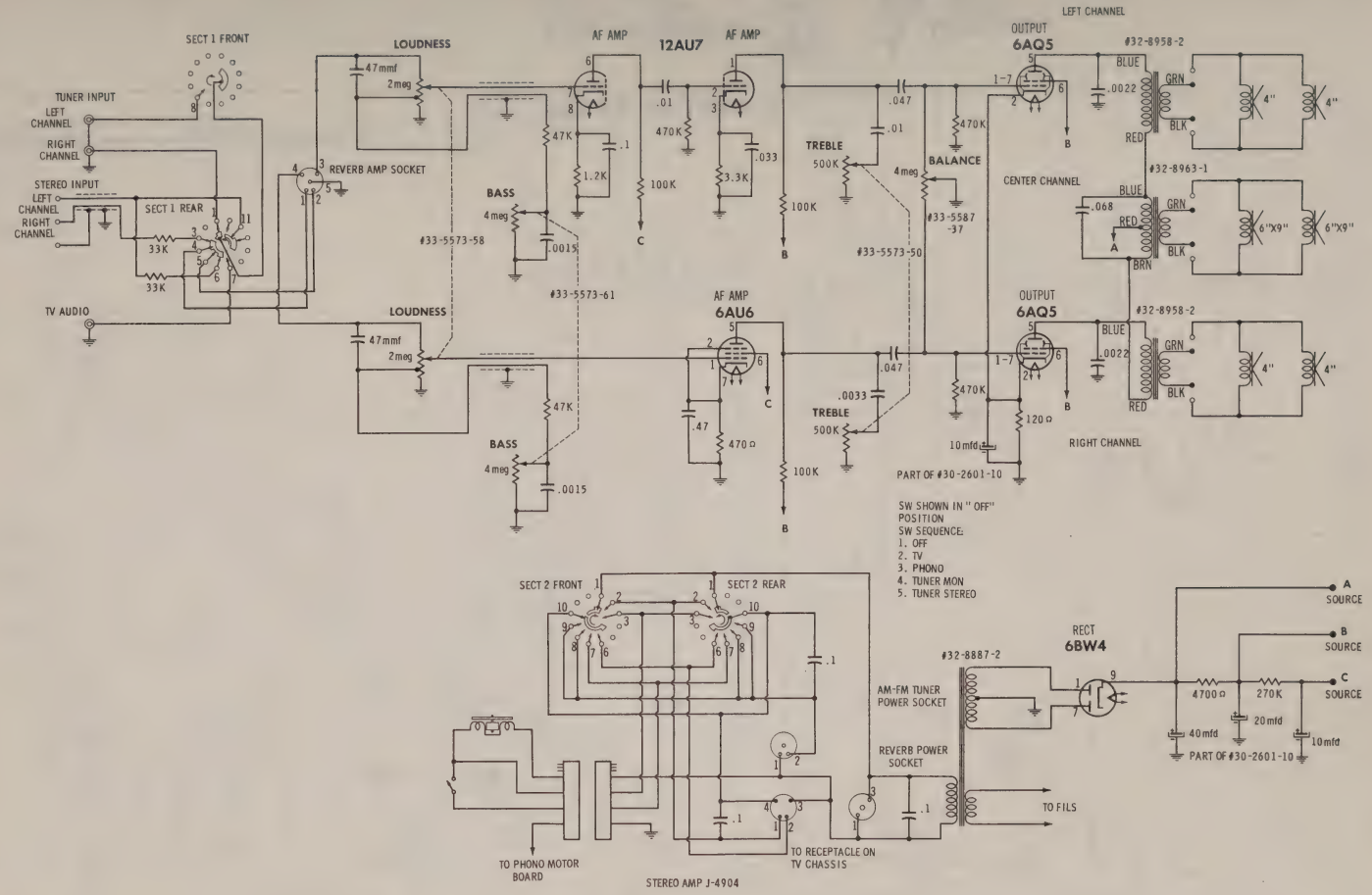


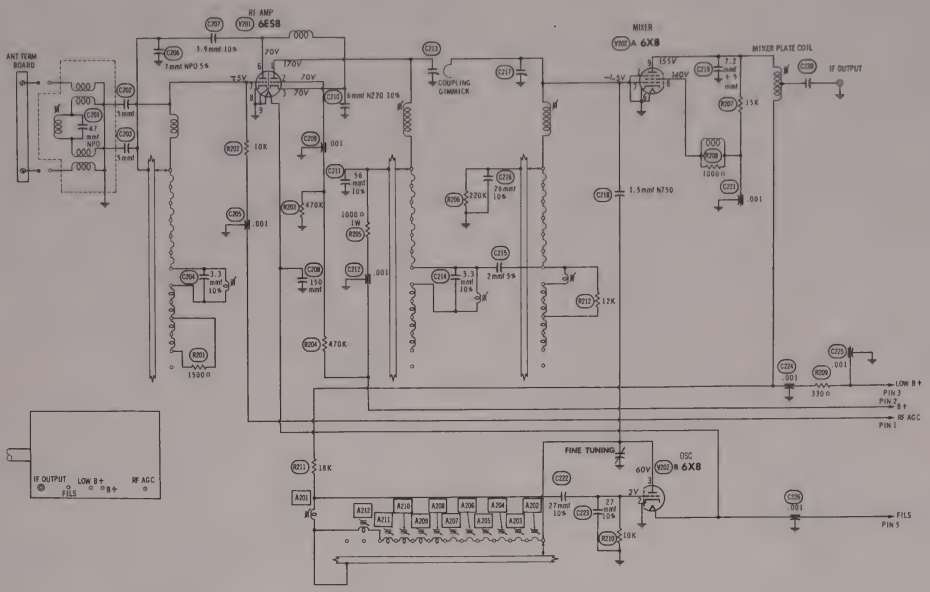
FIG. 2



A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1961

AUDIO AMP J-4904

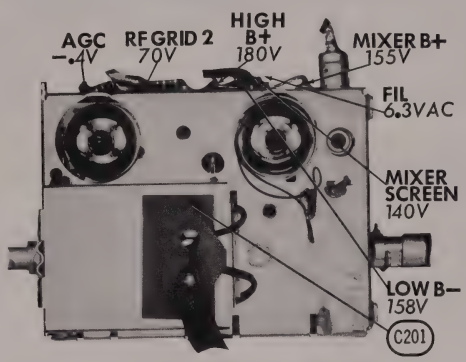
PHILCO CHASSIS 11N53, 11N53U, 11N54, 11N56, 11N56U

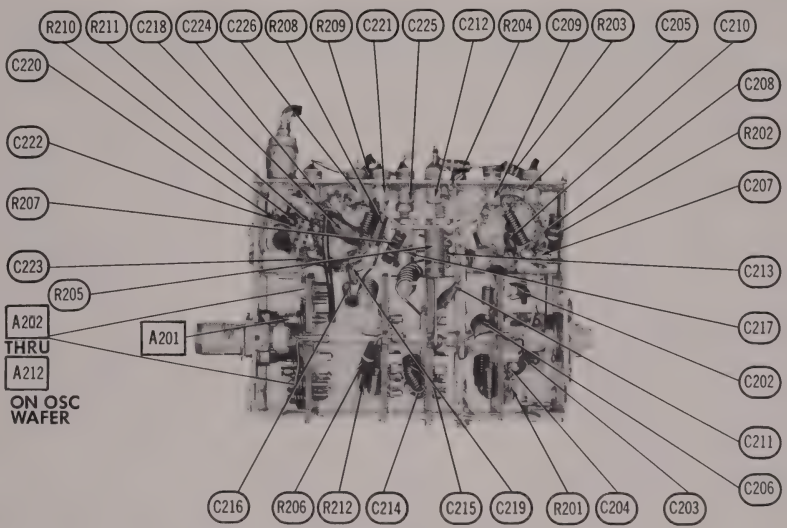


A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1961

VHF TUNER 76-12000-3

VHF TUNER 76-12000-3
TOP VIEW





VHF TUNER 76-12000-3 - BOTTOM VIEW

VHF TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: GENERAL CEMENT #5097, 8727
WALSCO #2515

OSCILLATOR ALIGNMENT

Set the Fine Tuning to the center of its range.
Make certain Video IF Alignment is correct before proceeding with VHF Oscillator Alignment.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Across antenna terminals.	209.75MC (400∿ 30% AM Mod.)	13	Across Video Detector	A201	Adjust for MINIMUM scope indication.
2.	"	203.75MC	12	"	A202	"
3.	"	197.75MC	11	"	A203	"
4.	"	191.75MC	10	"	A204	"
5.	"	185.75MC	9	"	A205	"
6.	"	179.75MC	8	"	A206	"
7.	"	173.75MC	7	"	A207	"
8.	"	81.75MC	6	"	A208	"
9.	"	75.75MC	5	"	A209	"
10.	"	65.75MC	4	"	A210	"
11.	"	59.75MC	3	"	A211	"
12.	"	53.75MC	2	"	A212	"

RF AND MIXER ALIGNMENT

This portion of the tuner has been properly aligned at the factory and is very stable. Alignment of this portion should not be attempted in the field.

VHF TUNER PARTS LIST AND DESCRIPTIONS

TUBES

◆ GENERAL ELECTRIC ◆			◆ RAYTHEON ◆ SYLVANIA ◆		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	6ES8	V202	Mixer - Osc.	6X8

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	47 NPO		NPO-DI 47	DTZ-47	C10Q47C	CCTO-470	CNO-447	10TCC-Q47
C202	5		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C203	5		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C204	3.3 10%		NPO-SI 3.3	TCZ-3R3	C10V33C	CCTO-3R3	CNO-533	10TCC-V33
C205	.001		EF-001	MFT-1000		CCF-102	CT280A	
C206	7 NPO 5%		NPO-DI 6.8	DTZ-6R8	C10V7C	CCTO-6R8	CNO-568	10TCC-V68
C207	3.9 10%							
C208	150		DI-150	DD-151	L10T15	CCD-151	GP315	10TS-T15
C209	.001		EF-001	MFT-1000		CCF-102	CT280A	
C210	6 N220 10%							
C211	56 10%		NPO-DI 56	TCZ-56	C10Q56C	CCTO-560	CNO-456	10TCC-Q56
C212	.001		EF-001	MFT-1000		CCF-102	CT280A	
C213								
C214	3.3 10%		NPO-SI 3.3	TCZ-3R3	C10V33C	CCTO-3R3	CNO-533	10TCC-V33
C215	2 5%		NPO-SI 2.0	TCZ-2R2	C10V2C	CCTO-2R2	CNO-522	10TCC-V22
C216	26 10%		NPO-DI 25	TCZ-27	C10Q27C	CCTO-270	CNO-427	10TCC-Q27
C217								
C218	1.5 N750							
C219	7.2 ±.5mmf		NPO-DI 6.8	DTZ-6R8	C10V7C	CCTO-6R8	CNO-568	10TCC-V68
C220								
C221	.001		EF-001	MFT-1000		CCF-102	CT280A	
C222	27 10%		DI-27	DD-270	L10Q27	CCD-270	GP427	10TS-T27
C223	27 10%		DI-27	DD-270	L10Q27	CCD-270	GP427	10TS-T27
C224	.001		EF-001	MFT-1000		CCF-102	CT280A	
C225	.001		EF-001	MFT-1000		CCF-102	CT280A	
C226	.001		EF-001	MFT-1000		CCF-102	CT280A	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R201	1500Ω				R207	15K			
R202	10K				R208	1000Ω			
R203	470K				R209	330Ω			
R204	470K				R210	10K			
R205	1000Ω 1W				R211	18K			
R206	220K				R212	12K			

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	GENERAL ELECTRIC • RAYTHEON • SYLVANIA USE	TYPE	ITEM No.	USE	TYPE
V1	1st Video IF Amp.	6BZ6	V7	Audio Detector	6CB6
V2	2nd Video IF Amp.	6DK6	V8	Audio Output	6BQ5
V3	3rd Video IF Amp.- Video Detector	6HJ8	V9	Vert. Mult. - Vert. Output	6DR7
V4	Video Output - Sync Sep.	6AW8A	V10	Horiz. Mult.	6CG7
V5	AGC Keying - AGC Clamper	6BY8	V11	Horiz. Output	6DQ6B
V6	Sound IF Amp. - Noise Inv.	6FA8 (6U8) *	V12	Damper	6DA4 (6DE4) *
			V13	HV Rectifier	1G3GT

* Alternate

PICTURE TUBE

ITEM No.	REPLACEMENT DATA: PHILCO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
V14	23CP4	23CP4/GP4 ①	23CP4 ①		23CP4 ③	① Aluminized ③ Silver Screen "65"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP.	VOLT	PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No	PYRAMID PART No.	SPRAGUE PART No.
C1	200	150	30-2568-T8	AFH8-24-24	XA2062-1	XC1-20	FP18		TVLS-1431.1 *
C2A	200	150	30-2590-53	AFH24-47-25	D0023	XC4-57	WP419.39	TMT-3765	TVLS-4578 *
B	80	300			BR20015			TD-200-150	
C	20	300							
D	20	300							
C3A	20	300	30-3601-9	AFH3-113-20	B0390		FD399	TMD-2620	TVL-2754
B	10	300			BR1006			TD-100-50	TVA-1310
C	100	50							
C4A	10	450	30-2597-7	PH3-800	BBRD0646		WT700		TVAS-2663 *
B	100	25							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

ITEM No.	RATING			REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	.001				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C6	1.0	50V			P288N-1.0		CUB2W1	1DP-5-105	GEM-21	2TM-M1
C7	3.3		5%		NPO-DI 3R3	DTZ-3R3	C10V33C	CCTO-3R3	CNO-533	10TCC-V33
C8	.5-3					529-3		CV-1	CT565	
C9	.5-3					529-3		CV-1	CT565	
C10	1-5			#31-6535-2		529-6				
C11	.001				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C12	.47	100V			P288N-47		CUB4P1	1DP-4-474	GEM-2047	2TM-P47
C13	1-5			#31-6535-2		529-6				
C14	470				DI-470	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C15	.001				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C16	680				DI-680	DD-681	BYA10T68	CCD-681	B-368	10TS-T68
C17	.001				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C18	3.3		10%		NPO-SI 3.3	TCZ-3R3	C10V33C	CCTO-3R3	CNO-533	10TCC-V33
C19	.001				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C20	680				DI-680	DD-681	BYA10T68	CCD-681	B-368	10TS-T68
C21	.001				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C22	560		10%		DI-560	5RST56		CCD-561	GP356	10TP-T56
C23	.001				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C24	5				NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C25	470				DI-470	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C26	.01			Note 1	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C27	.1	400V			P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C28	.0082				BPD-008	DD-822	HVE18D8	CCD-822	B-282	BL-D80
C29	33		10%		DI-33	DD-330	C10Q33C	CCD-330	GP433	10TS-Q33
C30	.0047				BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C31	.0033				BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C32	.001				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C33	.1	200V			P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C34	.0015				BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C35	27		10%		DI-27	DD-270	L10Q27	CCD-270	GP427	10TS-Q27
C36	150				DI-150	DD-151	L10T15	CCD-151	B-315	10TS-T15
C37	100				DI-100	DD-101	L10T1	CCD-101	B-310	10TS-T10
C38	.0033				HFU-3333	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C39	.0082				BPD-008	DD-822	HVE18D8	CCD-822	B-282	BL-D80
C40	330				DI-330	DD-331	L10T33	CCD-330	B-333	10TS-T33
C41	.0056				DI-5600	DD-562	DPM56D56	CCD-562	B-256	10TS-D56
C42	.0047				BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C43	.1	400V			P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-S10
C44	.15	100V			P288N-15		CUB2P15	1DP-3-154	GEM-2015	2TM-P15
C45	.0082	400V	10%		P584CM-0082		DPM80D82	6DP-2-823	GEM-16282	6PS-D82
C46	.1	600V			P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P10
C47	.0015	1600V			P1584CM-0015	DD30-152	CUB6D15	16DP-1-152	GEM-16215	MD-D15
C48	.1	400V			P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C49	.0039				DI-3900	DD-392	L10D39	CCD-392	GP239	10TS-D39
C50	.0039	100V	10%		V84CD34-10%		DPM8SD39	8DP-1-392	JL-239	8PS-D39
C51	190	100V	10%		1469-00039		5RST39	CM-193-391K	MCE243	MS-339
C52	.1	100V		Note 2	P288N-1	DF-104	CUB2P1	1DP-2-104	GEM-201	2TM-P10
C53	.0082				BPD-008	DD-822	HVE18D8	CCD-822	B-282	BL-D80
C54	.022	600V	10%		V84C8822-10%		PM6822	6DP-2-223	GEM-1612	6TM-S22
C55	.01				BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C56	52	5000V	5%	#30-1246-21						
C57	.022	600V			P688N-022	DD-203	CUB5D22	6DP-2-223	GEM-6122	6TM-S22

Note 1. Run 1 (Chassis 11N53, 54, 56) uses .008mfd.
Note 2. Runs 1 thru 5 (Chassis 11N53, 54, 56) use .22mfd.

Philco Part Number

CONTROLS

ITEM No.	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: PHILCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1mg 500K Tap	½	33-5593-41	APL-74	C478F-1meg	B19-137X ②	PP16T55	Volume Note 1
B	Shaft			AK-33	R8-3/16	Not Req.	D8-37	
C	Switch			Not Req.	Not Req.	S13 ②	Not Req.	

CONTROLS (cont)

ITEM No.	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: PHILCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R2A	330Ω	½	33-5593-46	B-2		B11-102		Contrast Note 2
B	Shaft			Not Req.		3K9		
R3A	250K	½	33-5593-44	B-50	A47-250K-S	Q11-150	U46	Brightness
B	Shaft			Not Req.	F3-3	Not Req.	Not Req.	
R4A	75K	½	33-5593-45	B-35	A47-75K-S	Q11-125	U41	Vert. Hold
B	Shaft			Not Req.	F3-3	Not Req.	Not Req.	
R5A	50K	½	33-5593-50	B-31	A47-50K-S	Q11-123	TA54L	Horiz. Hold
B	Shaft			Not Req.	F3-3	Not Req.	Not Req.	
R6A	5meg	½	33-5593-40	B-87	A47-5meg-S	Q17-141	U33	Tone
B	Shaft			Not Req.	F3-3	Not Req.	Not Req.	
R7A	15K 13.5K Stop	2(WW)	33-5574-8	Not Req.	FX3-1/4 ■	B15 ■	Not Req.	Width
B	Shaft							
M8	1500Ω 1320Ω Stop	2(WW)	33-5591-22		39-1500 ▲	L12-1500 ▲	FL-1.5K ▲	Vert. Linearity
R9A	100K	½	33-5595-3					Horiz. Frequency (Centering)
B	3meg							Height
R10A	6000Ω	½	33-5593-43	TT-10	B47-5000-S	BU-115	SU-14	Noise Adjust
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	

Note 1. Not used in Chassis 11N56, U.
Note 2. Chassis 11N55, U use Part #33-5593-51.
■ Use 1200Ω 2W Resistor in series with Right hand terminal, viewed shaft end terminals down.

① Factory Assembled Part #PPQ19-137X (SK8).
▲ Use 1500 2W Resistor in series with terminal.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise noted.

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R11	1000Ω			
R12	820K			
R13	130K 5%			
R14	22K			
R15	1000Ω			
R16	22K			
R17	180K			
R18	220K			
R19	27K			
R20	56Ω			
R21	1000Ω			
R22	15K			
R23	1000Ω			(330Ω) *
R24	1000Ω			(330Ω) *
R25	1000Ω			(220Ω) *
R26	3900Ω			
R27	3300Ω			
R28	18K 2W			
R29	18K			
R30	150K			
R31	27K			
R32	2200Ω			Note 1
R33	100K			
R34	130K 5%			
R35	27K			
R36	10K			
R37	820K			
R38	10K 2W			
R39	8200Ω 2W			
R40	150Ω			
R41	15K			(18K) *
R42	3300Ω			
R43	220K			
R44	390Ω 5%			(330Ω) *
R45	100Ω			

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R46	470Ω 2W			
R47	27000 7W	PW7-2700	7W-SQ-2700	
R48	180Ω 1W			
R49	82K			
R50	47K			
R51	1000Ω 2W			
R52	5300Ω 7W	PW7-5300	7W-SQ-5300	
R53	18K 2W			(22K) *
R54	1.5meg 1W			
R55	27K			
R56	100Ω			
R57	1.5meg			
R58	68K 1W			
R59	10meg			
R60	150Ω			
R61	1000Ω			
R62	Thermistor			
R63	10K 1W			
R64	56K			
R65	1200Ω			(1000Ω) *
R66	560K			
R67	680K			
R68	1.8meg			
R69	56000 2W			
R70	100K 1W			
R71	180K 1W			
R72	390Ω 2W			
R73	3.3meg 1W			
R74	4700Ω			
R75	1000Ω			
R76	.5Ω			
R77	10K 5W	PW5-10K	7W-SQ-10K	
R78	3300Ω 3W	PW5-3300	3W-SQ-3300	
R79	2.2meg			(470K) *
R80	5.6Ω †			#33-1366-3

† Fusible Type. * Alternate Value. Note 1. Not used in some versions. #Philco Part Number

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	PHILCO PART No.	REPLACEMENT DATA
K1	AGC Clamper Plate	.0015mfd, 680K	30-6031-6	
K2	2nd Video IF Cathode	8mmf, 68Ω	30-6039-5	
K3	Vertical Blanking	.018mfd, .002mfd, 22K, 39K	30-6024-4	
K4	Audio Detector Grid	150mmf, 15K	30-6031-1	
K5	Sync Separator Network	390mmf, .002mfd, .01mfd 22K, 22K, 220K, 1meg, 1.2meg	30-6536-1	
K6	Vertical Integrator	150mmf, 500mmf, .004mfd, .008mfd, 10K, 33K, 90K	30-6030-7	
K7	Vertical Feedback	.0015mfd, .0022mfd, 33K, 68K	30-6539-1	
K8	Horizontal AFC Network	82mmf, 220mmf, .001mfd, .047mfd, 82K, 150K, 680K, 1.2meg	30-6035-2	Centralab PC-409 Sprague C-11
K9	Horizontal Mult. Plate Network	390mmf, .0015mfd, .0033mfd, 4700Ω, 6800Ω, 39K	30-6035-1	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: PHILCO PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	47.25MC Trap (1.5ub)	32-4545-32	BC-562	4604	RTC-8516	T856	
L2	47.25MC Trap (1.5ub)	32-4545-45	BC-562	4604	RTC-8516	T856	
L3	41.25MC Trap (3ub)	32-4545-34				TB294	
L4	RF Choke	32-4545-43					
L5	1st Video IF (.88ub)	32-4545-36	TY-189	6175	RTC-8610	T855	
L6	2nd Video IF	32-4686-22				T698	
L7	3rd Video IF	32-4686-2				T696	
L8	4th Video IF	32-4686-3				T697	
L9	RF Choke (22uh)	32-4674-1	TY-192	6152	RTC-8584	T336	
L10	RF Choke (3uh)	32-4545-44 ①	BC-554	4608	RTC-8518	T858	① Part #32-4545-7 used in Run 1 thru 4.

COILS (RF-IF) (cont)

ITEM No.	USE	REPLACEMENT DATA: PHILCO PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L11	Peaking (270uh)	32-4762-5	TV-198	6130	RTC-8576	T847	
L12	4.5MC Trap	32-4688-10					
S	Sound Takeoff						
L13	Peaking (150uh)	32-4762-5	TV-196	6130	RTC-8575	T843	
L14	Peaking (330uh)	32-4762-10	TV-200	6132	RTC-8577	T849	
L15	Sound IF	32-4745-2	TV-157	6270-PC		T255	
L16	Quadrature	32-4644-20				TB282	
L17	RF Choke (9uh)	32-4633-5	BC-566	4612	RTC-8522	T860	
L18	RF Choke (9uh)	32-4112-62	BC-566	4612	RTC-8522	T860	
L19	Fil. Choke (2.5uh)	32-4645-40	SW-830	4606	RTC-8617	T857	

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: PHILCO PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	Workman TV PART No.	NOTES
L20	Horiz. Stabilizer	32-5754-3				25S-16		T153	

FILTER CHOKE

ITEM No.	RATINGS: CURRENT (Measured)	DC RES.	INDUCTANCE @ CURRENT (000 °/o)	REPLACEMENT DATA: PHILCO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L21	.320A	40Ω	1 Hy.	32-5710-8 *	C-3996 ①		25C44	C-28X	① Drill new mounting hole(s). * Alt. Pt. #32-5710-4

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	SEC. 1	SEC. 2	REPLACEMENT DATA: PHILCO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V ② 1.6A	120V ② .930A	6.3V ② 6.5A Tap ② 2.8V	32-8902-3 ①					① Alt. Pt. #32-8902-1

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: PHILCO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	Vert. Output	32-8940-1	A-3815 ①	VO-113	26S75 ①	A-10BX	① Use 8 to 1 Turns Ratio
T3	Yoke (Horiz. 24MS) (110°) (Vert. 40MS)	76-12097-5				Y-72 & YW12	
	Yoke	32-9731-7					
	Yoke	32-8902					
T4	Horiz. Output	32-8951-4					
	Alt. Horiz. Output	32-8951-1					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	SEC.	REPLACEMENT DATA: PHILCO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T5	6700Ω	3-4Ω	32-8953-1	A-2900	A-3822	24S04	S-42X	

SPEAKER

ITEM No.	TYPE: SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA: PHILCO PART No.	QUAM PART No.	NOTES
SP1	6"	PM	6-8Ω	36-1680-4 ①	6A2128	① Used in Models UJ/24818M; UJ/24818M, W; UJ/24824P; UJ/24826W; UJ/24828M, WD.
SP2	6"	PM	6-8Ω	36-1680-4 ①	6A2128	
	4"	PM	3-4Ω	36-1675-16 ②	4A07	② Used in Models UJ/24819L, W.
	6"	PM	3-4Ω	36-1680-5 ②	6A15	③ Used in Models UJ/24838W
	4" x 6"	PM		36-1676-11 ③		④ Used in Models UJ/21904M, W.
	4 1/4"	PM	14-16Ω	36-1673-11 ④	4A15216	
	4" x 6"	PM		36-1676-1 ④		

POWER RECTIFIERS

ITEM No.	RATING: CURRENT (Measured)	REPLACEMENT DATA: PHILCO PART No.	RCA PART No.	SARKES TARZIAN PART No.	NOTES
M1	.330A	30-8048-2	1N1763	40H	
M3	.330A	30-8048-2	1N1763	40H	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: PHILCO PART No. FUSE	PHILCO PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	[illegible] PART No. FUSE	[illegible] PART No. HOLDER
M3	2" length of #26 wire		L3477					

PHILCO CHASSIS 11N53, 11N53U, 11N54, 11N56, 11N56U

FOLDER 2

PARTS LIST AND DESCRIPTIONS (Continued)

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		PHILCO PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	
M4		34-8037 *	6GC1 *		* Dual Selenium Diode, Common Cathode Type

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M5	Tuner	76-12000-3 *	VHF, Models J4816M, W; J4819L, W
		76-12073-6	Models UJ4816M, W; UJ4818M, UJ4819L, W
		76-12073-7	Models UJ4824P; UJ4826W; UJ4828M, WD; UJ4838W; UJ4904M, W
		76-12124-6	Models J4824P; J4826W; J4828M, WD; J4838W; J4904M, W

* #76-12000-5 may be used in some versions.

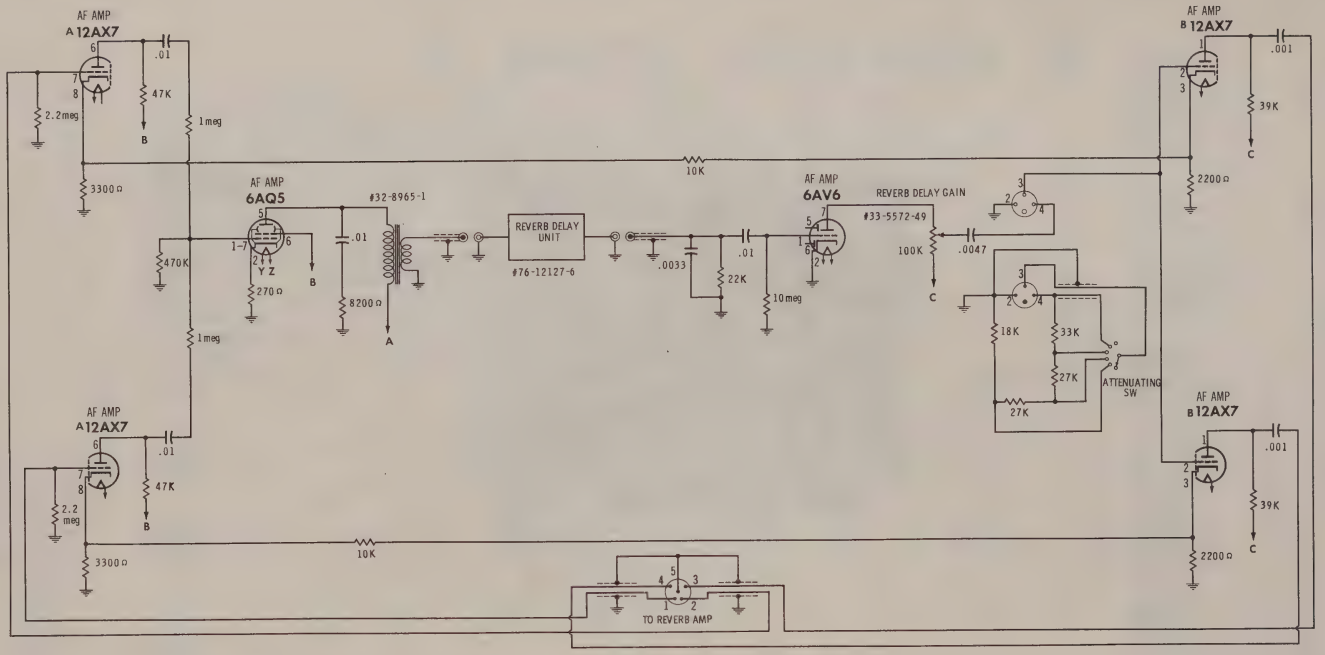
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

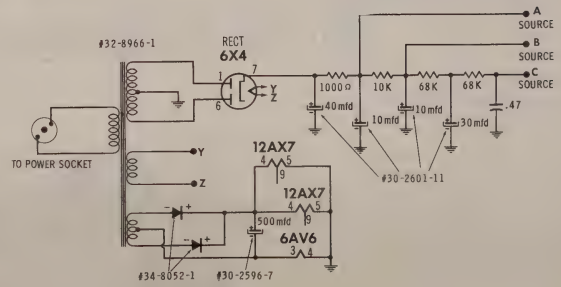
DESCRIPTION	PART NO.	MODEL NO.	J4816M, W	UJ4816M, W	J4818M	UJ4818M	J4819L, W	UJ4819L, W	J4824P	UJ4824P	J4826W	UJ4826W	J4828M, WD	UJ4828M, WD	J4838W	UJ4838W	J4904M, W	RC-55A
Window Glass-Cabinet	76-12139-1		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Knob-VHF Channel Selector	424-8173		X	X	X	X												
Knob- "	424-8162						X	X										
Knob- "	424-8196								X	X	X	X	X	X	X	X	X	
Knob-UHF Channel Selector	424-8167									X								
Knob- "	424-8173											X		X		X		
Knob-UHF Fine Tuning	424-8172											X		X		X		
Knob-VHF Fine Tuning	424-8172		X	X	X	X											X	
Knob- "	424-8163						X	X										
Knob- "	424-8171								X	X								
Knob-Pre-Set Fine Tuning	424-8203								X	X	X	X	X	X	X	X		
Knob- "	54-6405-5																X	
Knob-Off-On, Volume	424-8165		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Knob-Brightness, Tone, Vert. Hold, Horiz. Hold	424-8174		X	X	X	X			X	X	X	X	X	X	X	X	X	
Knob-Brightness, Contrast, Vert. Hold, Horiz. Hold	424-8169						X	X										
Knob-Function Selector	424-8199																X	
Knob-Treble, Bass, Balance, Reverb.	28-11588-3																X	
Pushbutton-Chan. Selector	28-13653-1																	X
Pushbutton-Volume, Mute, Off-On	28-13653-2																	X
Knob Spring-VHF Chan. Sel, Vol., Contrast	28-5514-3		X	X														
Knob Spring-H. Hold, V. Hold, Brightness, Tone	1W60699FE7		X	X														
Knob Spring-Fine Tuning	56-2351-9		X	X	X	X												
Knob Spring- "	W2639-4FE7						X	X										
Knob Spring- "	1W60699								X	X								
Knob Spring-UHF Chan. Sel.	28-9374							X										
Knob Spring-Horiz., Vert., Tone, Volume, Brightness, Contrast VHF Chan. Sel.	28-9374				X		X	X	X	X								
Door Pull	28-13196						X	X										
Cabinet-Back	54-5947-1																	X
Cabinet-Front	54-5946-1																	X

WIRING DATA

High Voltage Lead	Use BELDEN No.	8869
Shielded Hook-up Wire	Use BELDEN No.	8885 (Single Conductor)
		8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors
		8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No.	8874
300Ω Tuner Input Lead	Use BELDEN No.	8225
300Ω Antenna Lead-in	Use BELDEN No.	8230 or 8275
Antenna Rotor Cable	Use BELDEN No.	8464 (Flat) or 8484 (Round) - 4 Conductor
		8485 (Round) - 5 Conductor
		8488 (Round) - 8 Conductor



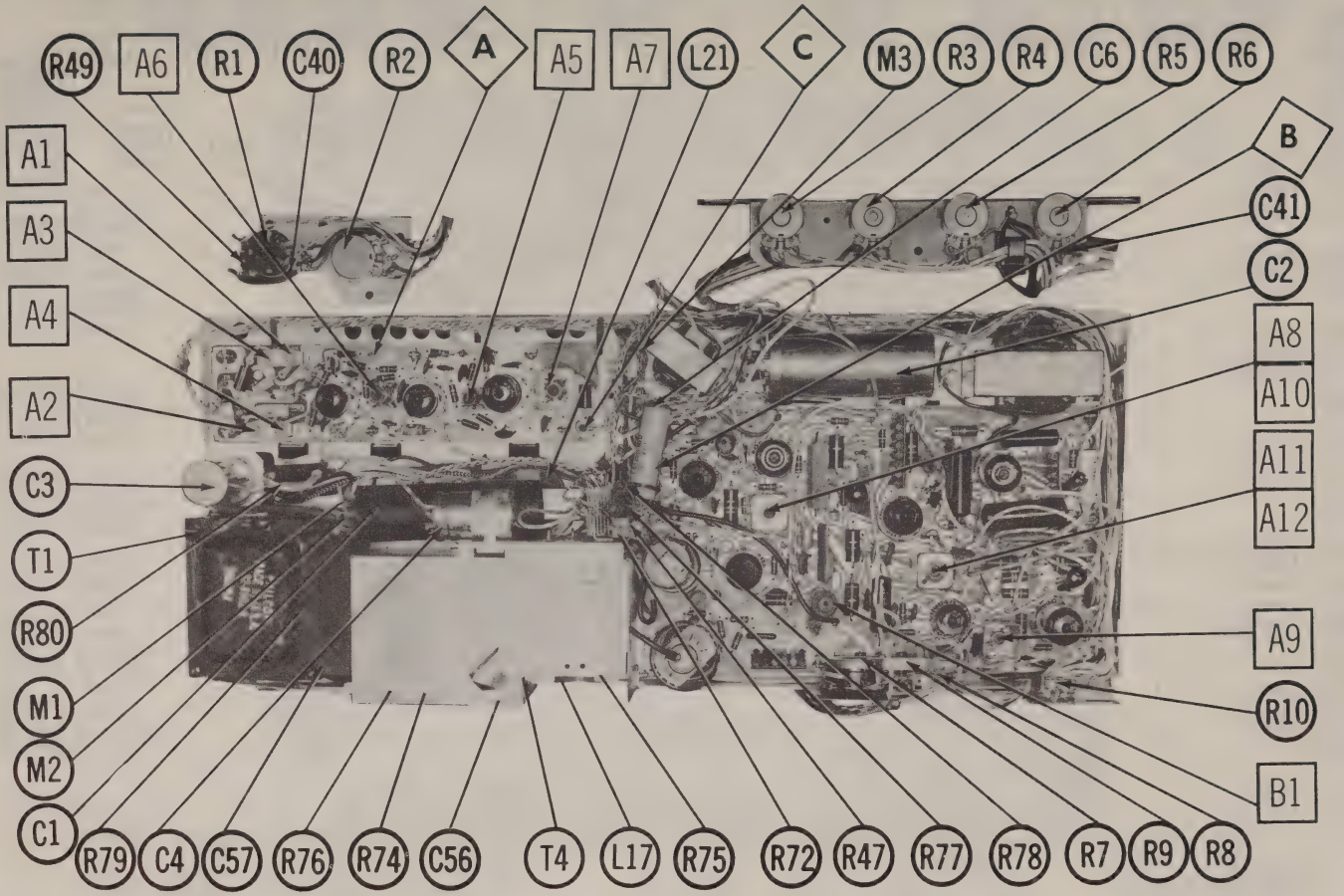
REVERB AMP SPR-3



A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1961

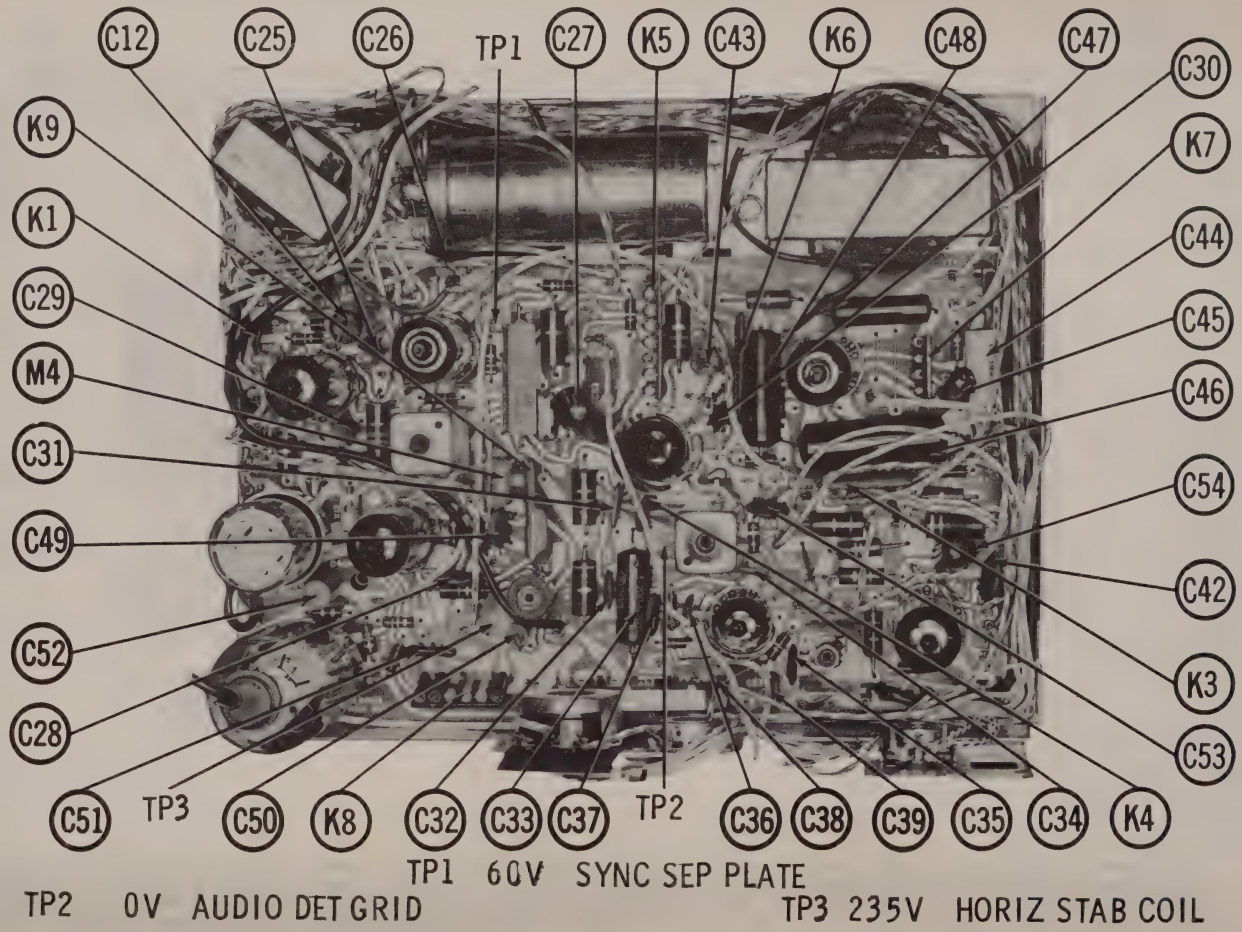
REVERB. AMP SPR-3



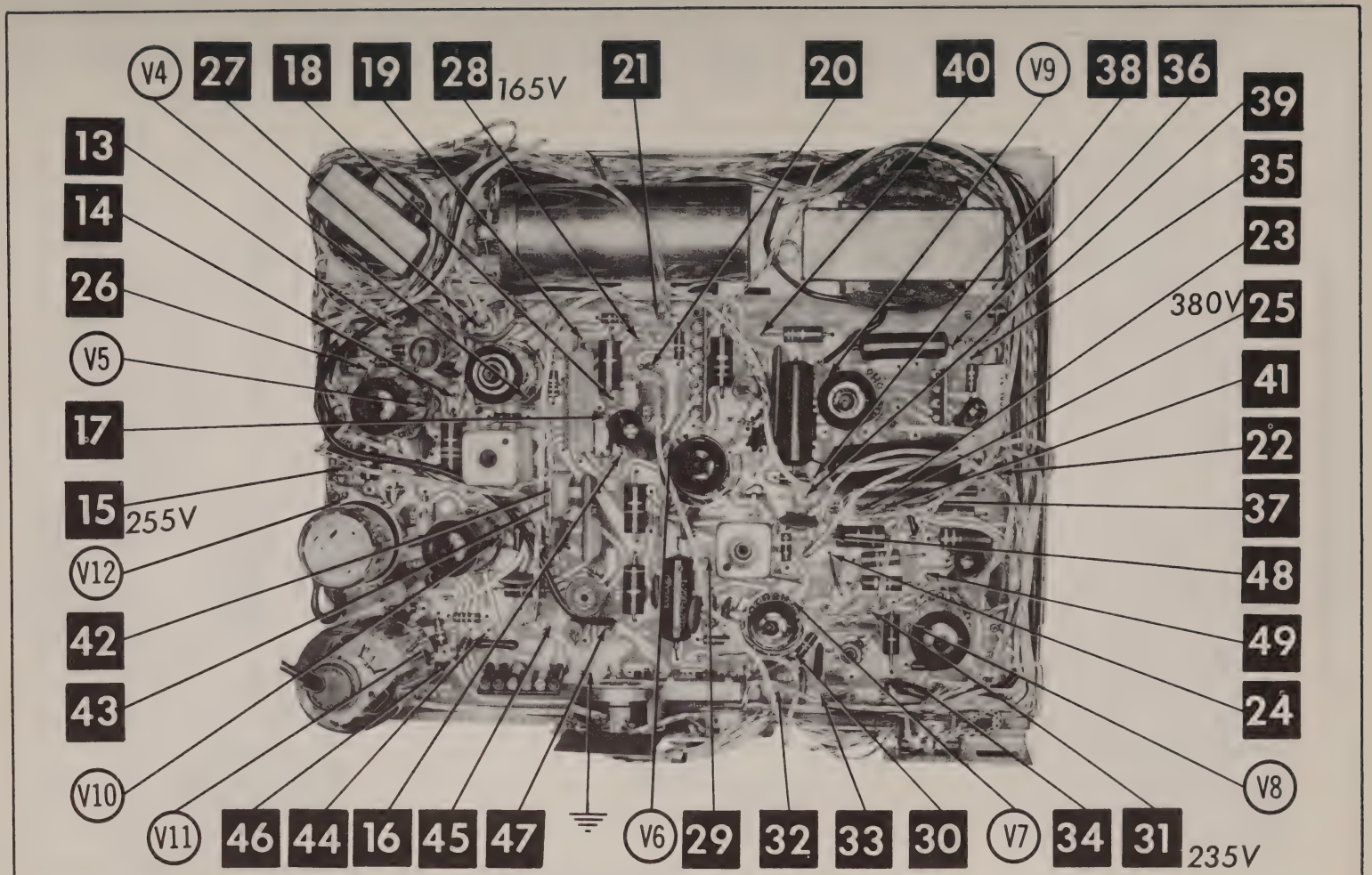
TV CHASSIS - TOP VIEW

PHILCO CHASSIS 11N53, 11N53U, 11N54, 11N56, 11N56U

FOLDER 2



VIDEO OUTPUT, SOUND, SYNC, SWEEP PRINTED BOARD
CAPACITOR, MISC, TEST POINT IDENT.



A Howard W. Sams CIRCUITRACE Photo

VIDEO OUTPUT, SOUND, SYNC, SWEEP PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

PHILCO CHASSIS 11N53, 11N53U, 11N54, 11N56, 11N56U

FOLDER 2

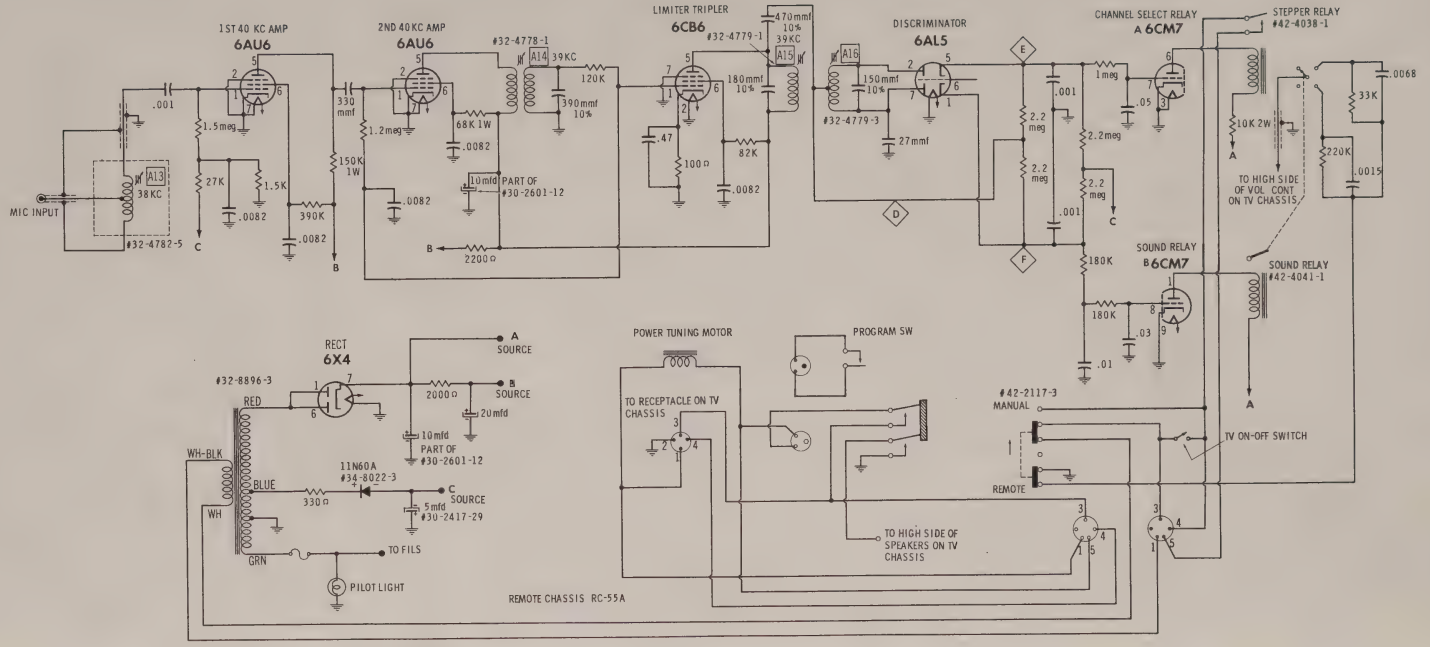
TV RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	125K	56Ω	FIL	FIL	▲1000Ω	▲1000Ω	0Ω		
V2	6DK6	100K	130K	FIL	FIL	†1400Ω	†1400Ω	130K		
V3	6HJ8	150Ω	.1Ω	†4700Ω	FIL	FIL	†4700Ω	.1Ω	3900Ω	0Ω
V4	6AW8A	0Ω	1.4meg	†30K	FIL	FIL	●160Ω	3900Ω	†21K	†6300Ω
V5	6BY8	†28K	NC	0Ω	FIL	FIL	890K	370K	†10K	†2700Ω
V6	6EA8	†28K	5.5Ω	†13K	FIL	FIL	†13K	150Ω	●3000Ω	2.4meg
V7	6CS6	15K	390Ω	FIL	FIL	†225K	†11K	3Ω		
V8	6BQ5	NC	●100K	180Ω	FIL	FIL	NC	†1000Ω	NC	†510Ω
V9	6DR7	†315Ω	NC	2meg	FIL	FIL	●†3meg	68K	●50K	●380Ω
V10	6CG7	†10K	1.9meg	1200Ω	FIL	FIL	†46K	●110K	1200Ω	0Ω
V11	6DQ6B	NC	FIL	NC	●†6400Ω	700K	NC	FIL	0Ω	TOP CAP †14Ω
V12	6DA4	NC	NC	¶†280K	NC	†40Ω	NC	FIL	FIL	
V13	1G3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP †485Ω
V14	23CP4	FIL	41K	†280K	†280K	NC	NC	●160K	FIL	
V201	6ES8	†4700Ω	230K	INF	FIL	FIL	■0Ω	900K	0Ω	0Ω
V202	6X8	0Ω	10K	†29K	FIL	FIL	0Ω	220K	†26K	†11K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM OUTPUT OF M1.
† MEASURED FROM PIN 3 OF V12.
■ MEASURED FROM PIN 3 OF V201.
▲ MEASURED FROM PIN 2 OF V2.
NC NO CONNECTION

REMOTE CONTROL RECEIVER ALIGNMENT INSTRUCTIONS

	AUDIO GENERATOR COUPLING	AUDIO GENERATOR FREQUENCY	CONNECT VTVM	ADJUST	REMARKS
1.	Across test speaker terminals and place speaker approximately 3" in front of the ceramic pick-up.	38KC	DC probe thru 22meg to point Ⓓ. Common to chassis.	A13	Adjust for maximum deflection.
2.	"	39KC	"	A14, A15	"
3.	"	"	DC probe thru 22meg to point Ⓔ. Common thru 22meg to point Ⓕ.	A16	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

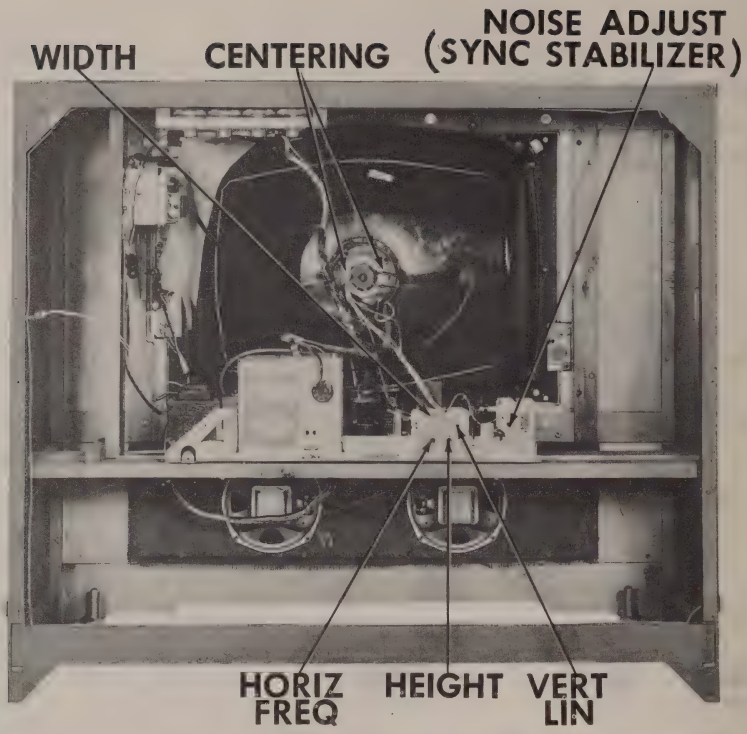


A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1961

REMOTE CONTROL RECEIVER RC-55A

PHILCO CHASSIS 11N53, 11N53U, 11N54, 11N56, 11N56U



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a station signal. Allow the receiver to warm up. Connect a clip lead across the Horizontal Stabilizing Coil (L20).

Set the Horizontal Hold (R5) to the center of its range.

Adjust the Horizontal Freq. (Centering, R9A) until the picture appears to float back and forth across the screen.

Remove the clip lead and adjust the Horizontal Stabilizing Coil slug (B1) until the picture synchronizes horizontally.

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL: MODEL J4818M

1. Remove 4 push-on type knobs on front panel.
2. Remove rear cover.
3. Remove 4 chassis bolts.
4. Remove 2 machine screws on control panel and lower panel down.
5. Remove 5 screws holding tuner bracket and lower bracket down.
6. Disconnect picture tube socket, yoke plug, speaker leads, and high voltage lead.
7. Pull chassis straight out.

PICTURE TUBE REMOVAL

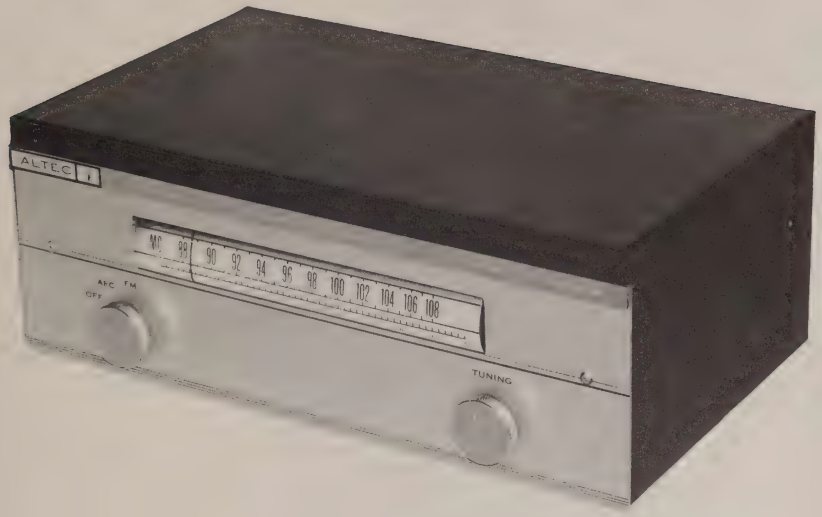
Note: It is not necessary to remove the chassis for picture tube removal.

1. Remove 4 bolts (inside cabinet) at corners of picture tube.
2. Disconnect picture tube socket, yoke plug, speaker leads, and high voltage lead.
3. Tilt picture tube out from top and remove straight out (rear of cabinet).

PHOTOFACT® Folder

**ALTEC LANSING
MODEL 308A**

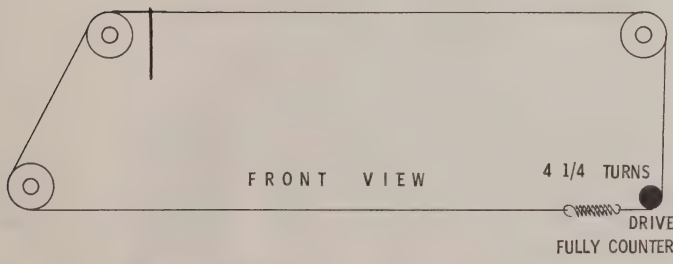
ALTEC LANSING
MODEL 308A



ALTEC LANSING
MODEL 308A

TRADE NAME	Altec Lansing Model 308A
MANUFACTURER	Altec Lansing Corp., A Subsidiary of Ling-Temco Electronics, Inc., 1515 S. Manchester Ave., Anaheim, Calif.
TYPE SET	AC Operated 5 Tube FM Tuner
POWER SUPPLY	110 — 120 Volts AC, 60 Cycles RATING 20 Watts, .21 Amp. @ 117 Volts AC
TUNING RANGE—FREQ. MOD.	88 — 108MC

DIAL CORD STRINGING

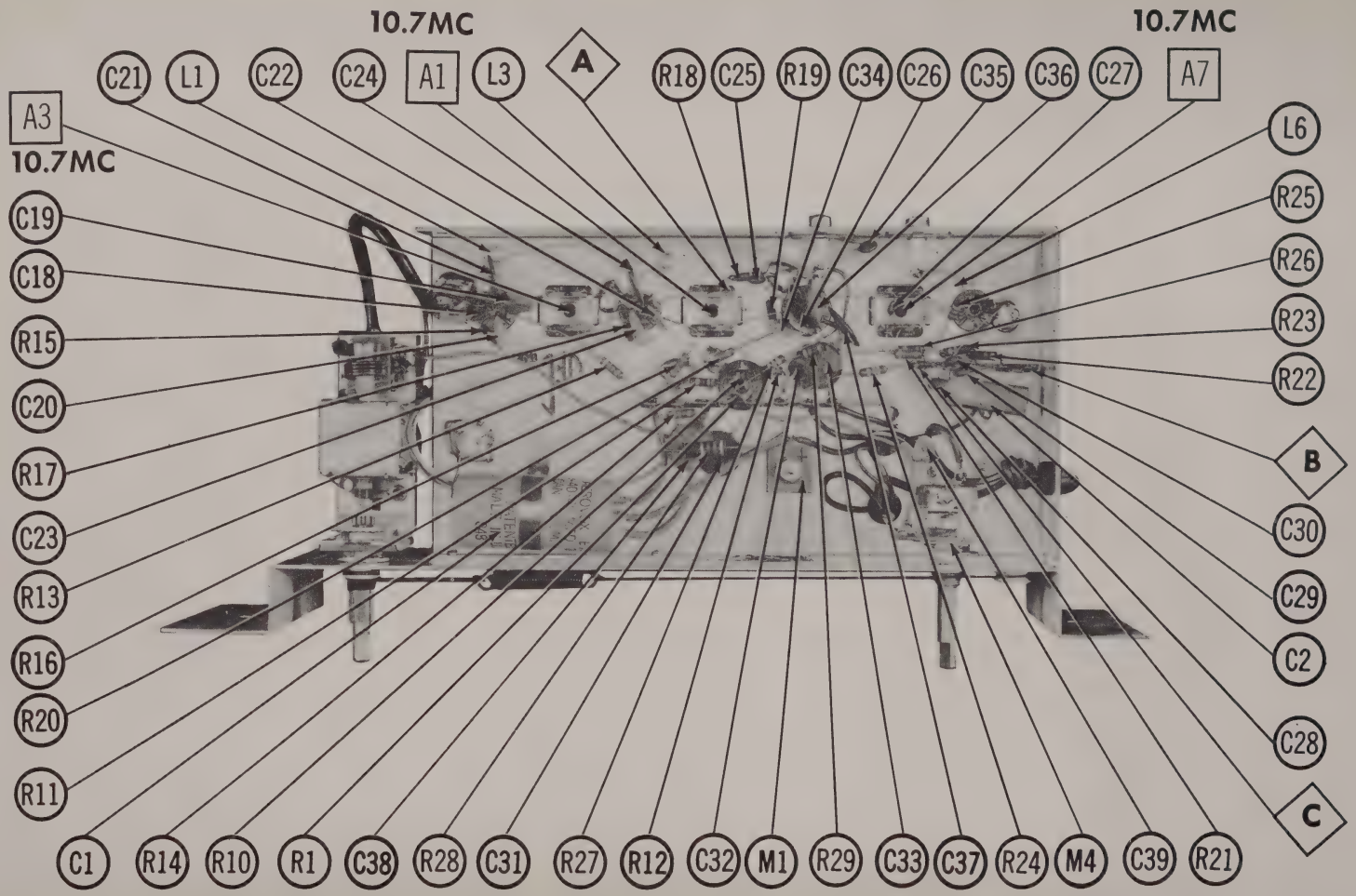


HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

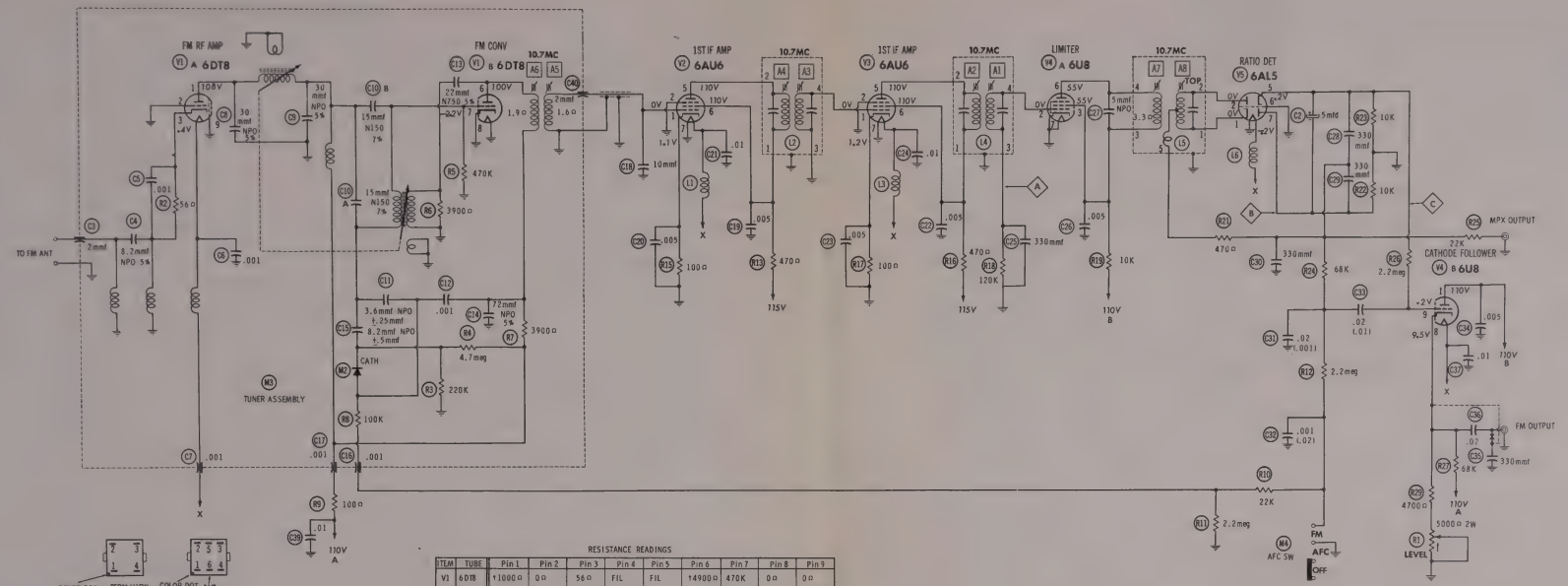
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KJ786

SET 555 FOLDER 3



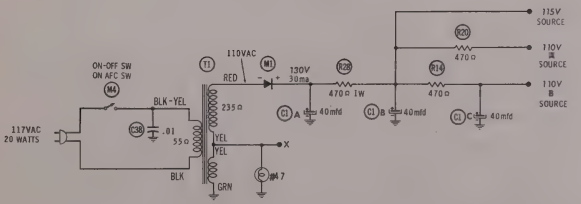
CHASSIS-BOTTOM VIEW



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6DT8	†1000Ω	0Ω	56Ω	FIL	FIL	†4900Ω	470K	0Ω	0Ω
V2	6AU6	1.6Ω	0Ω	FIL	FIL	†940Ω	†940Ω	100Ω		
V3	6AU6	.1Ω	0Ω	FIL	FIL	†940Ω	†940Ω	100Ω		
V4	6U8	†940Ω	120K	†11K	FIL	FIL	†11K	0Ω	7000Ω	2.2meg
V5	6AL5	2.2meg *4meg	2.2meg *4meg	FIL	FIL	10K	0Ω	10K		

ALL MEASUREMENTS MADE IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
* MEASURED IN "AFC" POSITION. † MEASURED FROM OUTPUT OF M1.



DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

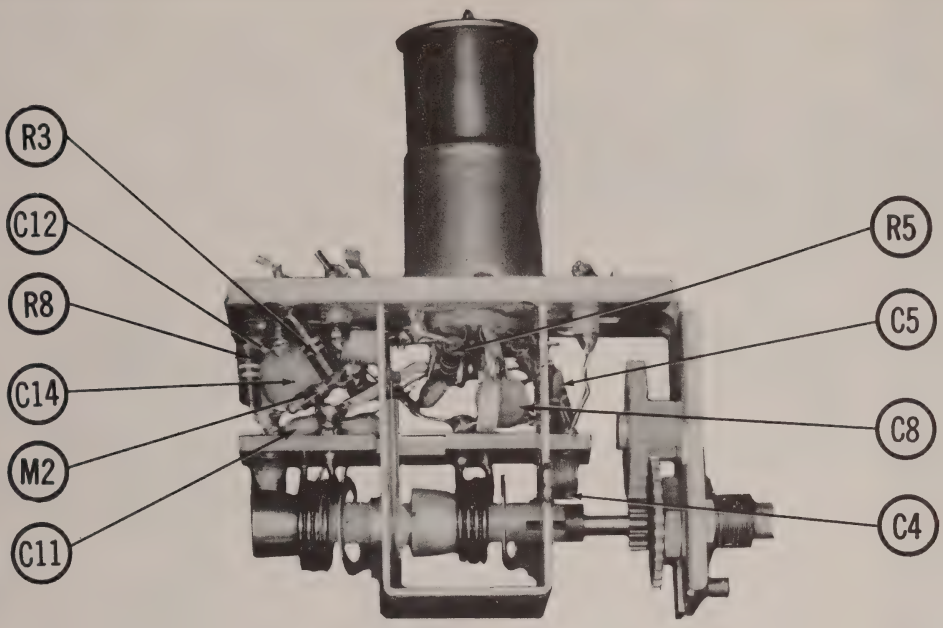
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

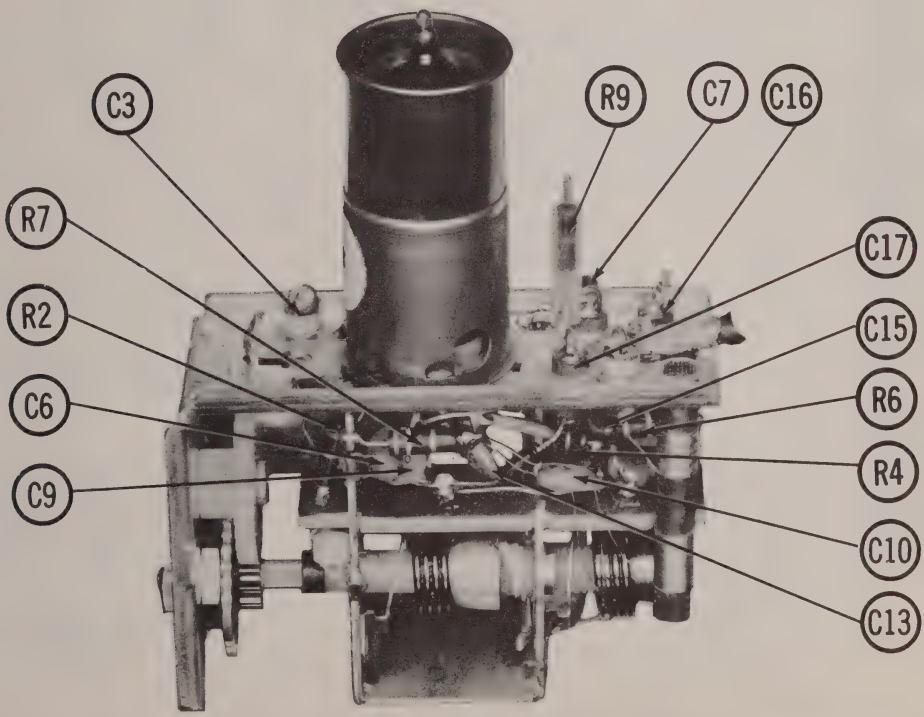
A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1961

ALTEC LANSING MODEL 308A



FM RF TUNER-LEFT SIDE



FM RF TUNER-RIGHT SIDE

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.
Suggested Alignment Tools: A1 thru A4, A7, A8.... GENERAL CEMENT #5097, 8727
WALSCO #2515
A5, A6..... GENERAL CEMENT #9296, 9297
WALSCO #2546, 2547

IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	Across antenna terminals with 150Ω in each lead.	10.7MC (Unmod.)	Point of non-interference.	DC probe to point Ⓐ. Common to chassis.	A1, A2, A3, A4, A5, A6	Adjust for maximum deflection.
2.	"	"	"	DC probe to point Ⓑ. Common to chassis.	A7	"
3.	"	"	"	DC probe to point Ⓒ. Common to chassis.	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
1.	Across antenna terminals with 150Ω in each lead.	10.7MC (450KC Swp)	Point of non-interference.	Vert. amp. to point Ⓐ. Low side to chassis.	A1, A2, A3, A4, A5, A6	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
2.	"	"	"	Vert. amp. to point Ⓑ. Low side to chassis.	A7	Disconnect stabilizing capacitor C2. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C2.
3.	"	"	"	Vert. amp. to point Ⓒ. Low side to chassis.	A8	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A7 for maximum amplitude and straightness of cross-over lines.

FIG. 1

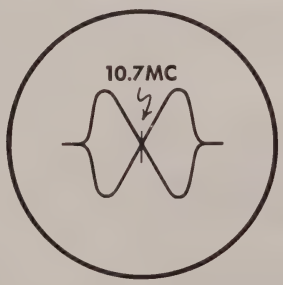


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES

• GENERAL ELECTRIC •			• RAYTHEON • SYLVANIA •		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amp.-Converter	6DT8	V4	Limiter-Cath. Follower	6U8
V2	1st IF Amplifier	6AU6	V5	Ratio Detector	6AL5
V3	2nd IF Amplifier	6AU6			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Altec Lansing PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	40	150		PRS3675	BBRT44415	QT3-8	TCT3115	TDLT-5	TVA-3451
B	40	150							
C	40	150							
C2	5	25		PRSI310	BBR5-50	QT1-3	TC30	TD-5-25	TVA-1203

FIXED CAPACITORS

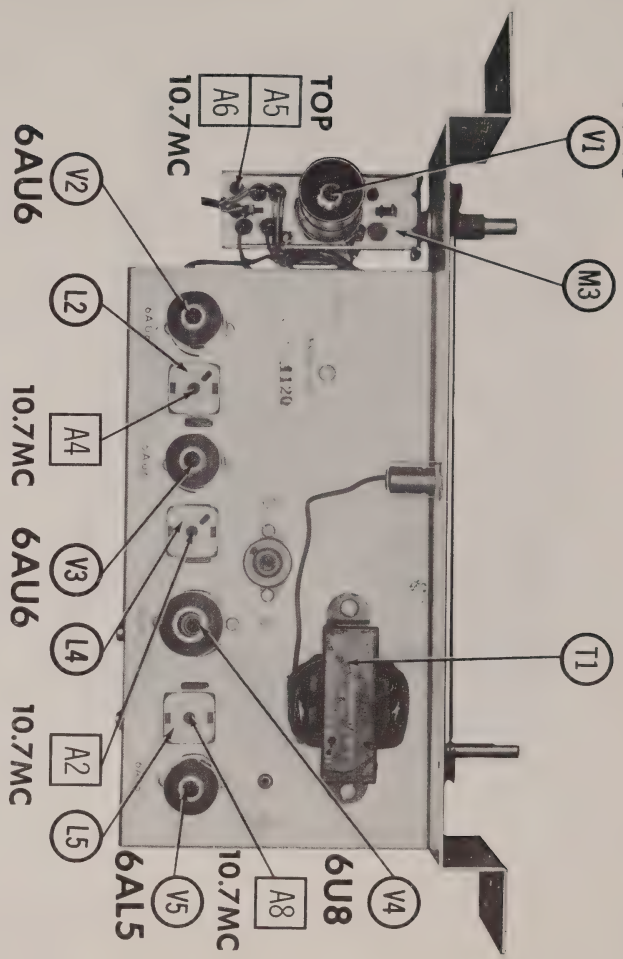
ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	‡							
C4	8.2 NPO 5%		NPO-DI 8.2		C10V82C			10TCC-V82
C5	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C6	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C7	.001		EF-001	MFT-1000		CCF-102	CT280A	
C8	30 NPO 5%			TCZ-30	C10Q3C	CCTO-300		10TCC-Q30
C9	30 NPO 5%			TCZ-30	C10Q3C	CCTO-300		10TCU-Q30
C10A	15 N150 7%					*		10TCP-Q15
B	15 N150 7%					*		10TCP-Q15
C11	3.6 NPO ± .25mmf							
C12	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C13	22 N750 5%			DTN-22	C10Q22U		CN 7-422	10TCU-Q22
C14	72 NPO 5%			DTZ-75	C10Q75C		CNO-475	10TCC-Q75
C15	8.2 NPO ± .5mmf		NPO-DI 8.2		C10V82C			10TCC-V82
C16	.001		EF-001	MFT-1000		CCF-102	CT280A	
C17	.001		EF-001	MFT-1000		CCF-102	CT280A	
C18	10		DI-10	DD-100	L10Q1	CCD-100	GP410	10TS-Q10
C19	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C20	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C21	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C22	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C23	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C24	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C25	330		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C26	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C27	5 NPO		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C28	330		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C29	330		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C30	330		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C31	.02	(.001) †	BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C32	.001	(.02) †	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C33	.02	(.01) †	BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C34	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C35	330		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C36	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C37	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C38	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C39	.01		BPD-01	DD-103	BYA10S1	CCD-102	B-110	5HK-S10

† Alternate Value.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Altec Lansing PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	5000Ω	2(WW)			39-5000	112-5000	FL-5K	FM Level

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	56Ω			
R3	220K			
R4	4.7meg			
R5	470K			
R6	3900Ω			
R7	3900Ω			
R8	100K			
R9	100Ω			
R10	22K			
R11	2.2meg			
R12	2.2meg			
R13	470Ω			
R14	470Ω			
R15	100Ω			

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R16	470Ω			
R17	100Ω			
R18	120K			
R19	10K			
R20	470Ω			
R21	470Ω			
R22	10K			
R23	10K			
R24	68K			
R25	22K			
R26	2.2meg			
R27	68K			
R28	470Ω 1W			
R29	4700Ω			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		Altec Lansing PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Fil. Choke (1.5uh)		BC-562	4604	RTC-8516	T856	
L2	2nd IF	1607-1	FM-254	1463	RTC-8599	T633	
L3	Fil. Choke (1.5uh)		BC-562	4604	RTC-8516	T856	
L4	3rd IF	1607-1	FM-254	1463	RTC-8599	T633	
L5	Ratio Detector	2607-5	FM-255	1465	RTC-8600	T635	
L6	Fil. Choke (1.5uh)		BC-562	4604	RTC-8516	T856	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	Altec Lansing PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V@ .21A	110V@ .030A DC	6.3V@ 1.7A	6411					

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT (Measured)	Altec Lansing PART No.	RCA PART No.	SARKES TARZIAN PART No.	
M1	.030A	SR050 †	1N1763 *	65 †	† Selenium * Silicon, Add Surge Resistor

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		Altec Lansing PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	
M2	*				* AFC (V-403)

MISCELLANEOUS

ITEM No.	PART NAME	Altec Lansing PART No.	NOTES
M3	Tuner		FM Tuner (Standard Coil #HFA-008-1001-3)
M4	Switch	1004	AFC, Includes Off-On (Rotary Type)

WIRING DATA

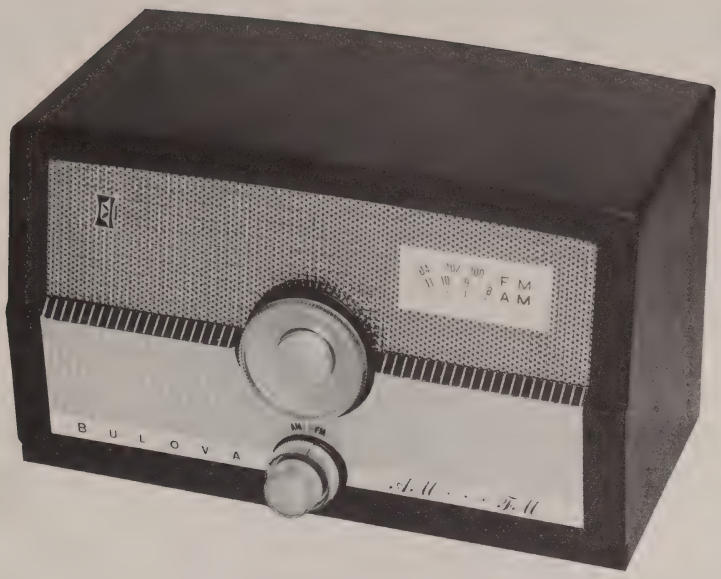
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder with CIRCUITRACE®

BULOVA MODEL 360 SERIES

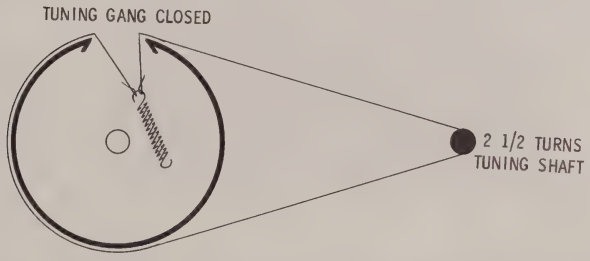
BULOVA MODEL 360 SERIES



BULOVA MODEL 360 SERIES

TRADE NAME	Bulova Model 360 Series
SUPPLIER	Bulova Watch Co., Bulova Park, Flushing 70, N. Y.
TYPE SET	AC-DC Operated 7 Tube FM-AM Receiver
POWER SUPPLY	110 — 120 Volts AC-DC RATING 28 Watts, .28 Amp. @117 Volts AC
TUNING RANGE-BROADCAST	540 — 1600KC FREQ. MOD. 88 — 108MC

DRIVE CORD STRINGING



FRONT VIEW

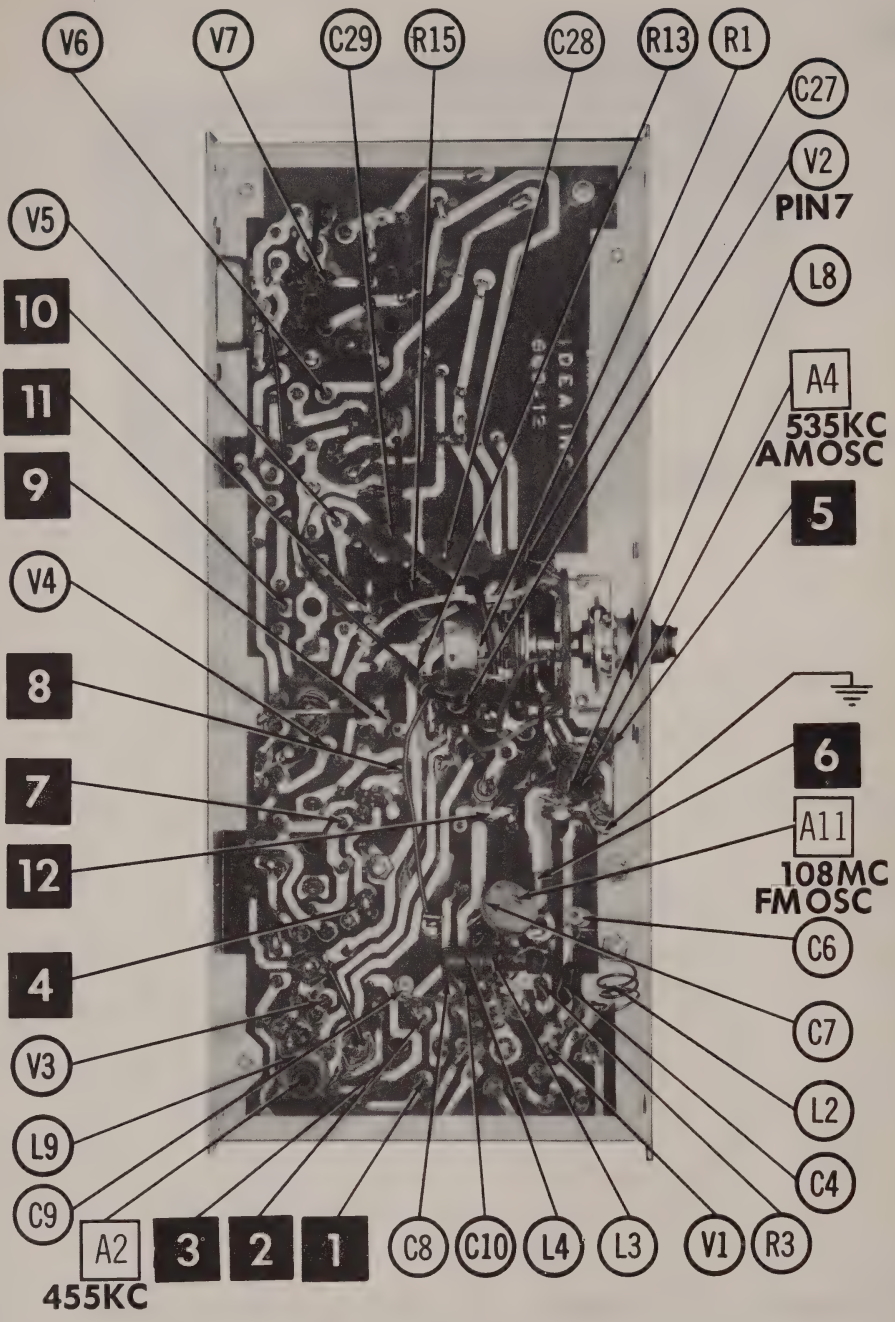
SET 555 FOLDER 4

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KK728

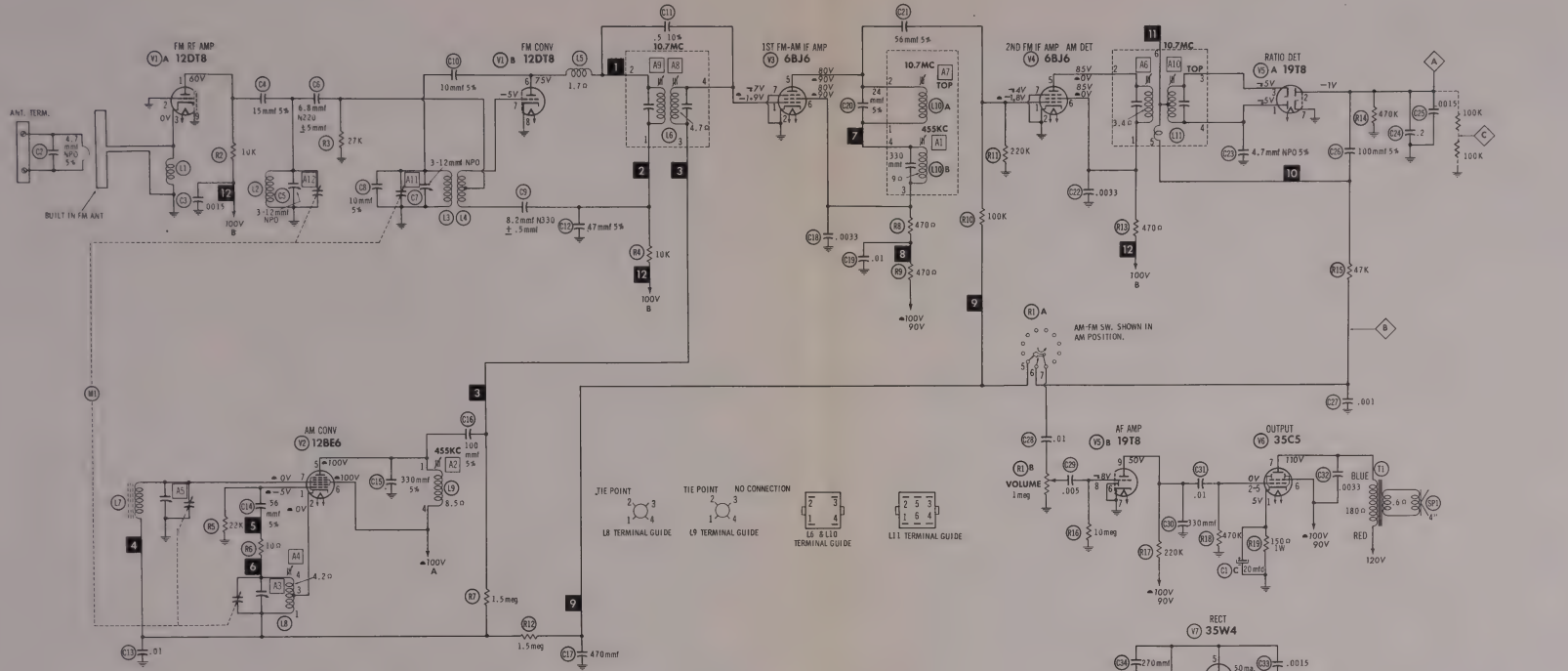
DATE 11 — 61



A Howard W. Sams CIRCUITRACE® Photo

PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12DT8	†11K	0Ω	.1Ω	10Ω	20Ω	†11K	27K	0Ω	0Ω
V2	12BE6	22K	.1Ω	0Ω	10Ω	▲†1000Ω	▲†1000Ω	▲1.8meg		
V3	6BT6	3.3meg	0Ω	20Ω	25Ω	†2000Ω	†2000Ω	0Ω		
V4	6BT6	220K	0Ω	25Ω	30Ω	†1500Ω	†1500Ω	0Ω		
V5	19T8	INF	470K	INF	30Ω	55Ω	0Ω	0Ω	10meg	†220K
V6	35C5	150Ω	470K	55Ω	100Ω	NC	†1000Ω	†180Ω		
V7	35W4	TP	NC	100Ω	135Ω	135Ω	130Ω	¶		

ALL MEASUREMENTS TAKEN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
▲ MEASURED IN "AM" POSITION. NC NO CONNECTION
† MEASURED FROM PIN 7 OF V7. TP TIE POINT

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
with CIRCUITRACE™
© Howard W. Sams & Co., Inc. 1961

BULOVA MODEL
360 SERIES

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A6 thru A10...GENERAL CEMENT #5097, 8727
WALSCO #2515
A2, A4.....GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A3, A5, A11, A12...GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

AM ALIGNMENT — SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.	455KC (400~ 30% AM)	(AM) Tuning gang fully open.	Across voice coil.	A1, A2	Adjust for maximum output.
2.	"	1630KC	"	"	A3	"
3.	"	535KC	Tuning gang fully closed.	"	A4	"
4.	"	1500KC	1500KC Signal.	"	A5	Adjust for maximum output. Repeat Steps 2, 3 and 4.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM — SELECTOR IN FM POSITION

Connect two matched 100K (±1%) resistors in series from point Ⓐ to B-. The junction of these two resistors is alignment point Ⓒ as shown on the schematic.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	High side thru .001mfd to FM RF stator lug of tuning gang. Low side to B-.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe to point Ⓐ. Common to B-.	A6, A7, A8, A9	Adjust for maximum deflection.
6.	"	"	"	DC probe to point Ⓑ. Common to point Ⓒ.	A10	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE — SELECTOR IN FM POSITION

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120Ω sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	High side thru .001mfd to FM RF stator lug of tuning gang. Low side to B-.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. amp. to point Ⓐ. Low side to B-.	A6, A7, A8, A9	Disconnect stabilizing capacitor C24. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C24.
6.	"	"	"	Vert. amp. to point Ⓑ. Low side to B-.	A10	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A6 for maximum amplitude and straightness of cross-over lines.

FM RF ALIGNMENT — SELECTOR IN FM POSITION

Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	Across FM antenna terminals with 150Ω in each lead.	108MC (Unmod.)	(FM) 108MC	DC probe to point Ⓐ. Common to B-.	A11	Adjust for maximum deflection.
8.	"	88MC	88MC	"	L4	Adjust for maximum deflection.
9.	"	108MC	108MC	"	A12	Adjust for maximum deflection.
10.	"	88MC	88MC	"	L2	Adjust for maximum deflection. Repeat Steps 7 thru 10.

FIG. 1

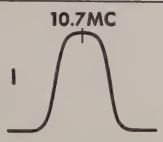
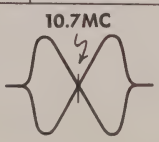
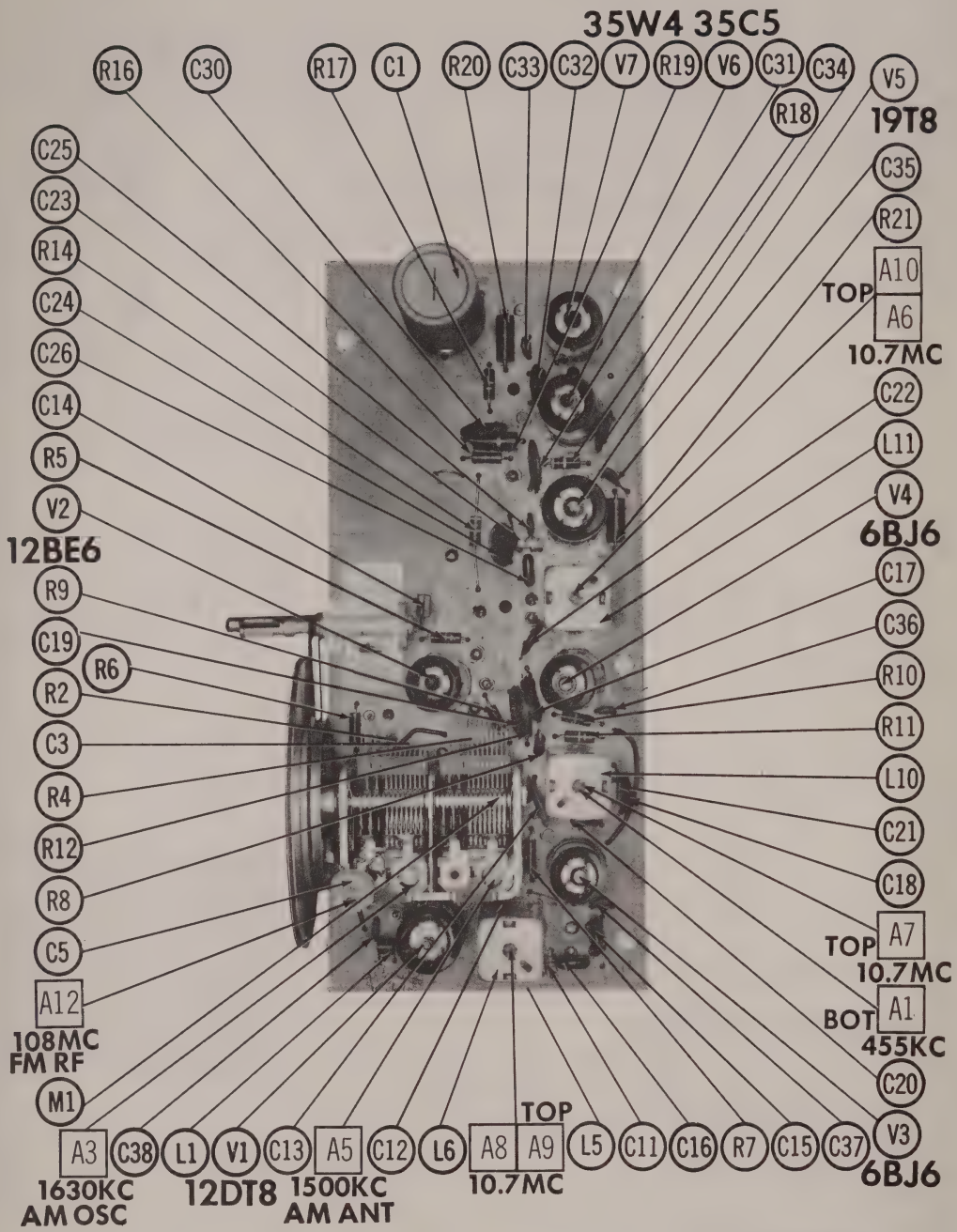


FIG. 2





CHASSIS TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •)
V1	FM RF Amp. -FM Conv.	12DT8
V2	AM Converter	12BE6
V3	1st FM IF Amp. -1st AM IF Amp.	6BJ6
V4	2nd FM IF Amp. -AM Det.	6BJ6
V5	Ratio Det. -AF Amp.	19T8
V6	Output	35C5
V7	Rectifier	35W4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA BULOVA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	C50	150	300-953-1	PRS4575	BBRT84215	QT3-6	TCT3119	TDLT-7	TVA-3455
B	B50	150							
C	D20	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	4.7 NPO 5%		NPO-SI 4.7	TCZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C3	.0015		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C4	15 5%		1469-000015	TCZ-15	22R5Q15	CM-19B-150J	CNO-415	MS-415
C5	3-12 NPO	#B557019		822-FZ				
C6	6.8 N220 ± .5mmf	#100-203-17				*		10TCR-V68
C7	3-12 NPO	#B557019		822-EZ				
C8	10 5%		1469-00001	TCZ-10	22R5Q1	CM-19B-100J	MCB215	MS-41
C9	8.2 N330 ± .5mmf	#100-203-23				*		
C10	10 5%		1469-00001	TCZ-10	22R5Q1	CM-19B-100J	MCB215	MS-41
C11	.5mmf 10%	#PC-0.5	NPO-SI .5	TCZ-R5				
C12	47 5%		1469-000047	TCZ-47	22R5Q47	CM-19B-470J	CNO-447	MS-447
C13	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	56 5%		1469-000056	TCZ-56	22R5Q56	CM-19B-560J	CNO-456	MS-456
C15	330 5%		1469-00033		5R5T33	CM-19B-331J		MS-333
C16	100 5%		1469-0001	TCZ-100	22R5T1	CM-19B-101J	MCE235	MS-310
C17	470		DI-470	DD-470	BYA10T47	CCD-471	B-347	10TS-T47
C18	.0033		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C19	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C20	24 5%		1469-000024	TCZ-24	22R5Q24	CM-19B-240J	CNO-425	MS-424
C21	56 5%		1469-000056	TCZ-56	22R5Q56	CM-19B-560J	CNO-456	MS-456
C22	.0033		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C23	4.7 5%		NPO-SI 4.7	TCZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C24	.2 10V			UKI0-204				HY-325
C25	.0015		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C26	100 5%		1469-0001	TCZ-100	22R5T1	CM-19B-101J	MCE235	MS-310
C27	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C28	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C29	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C30	330		DI-330	DD-331	L10T33	CCD-331	B-333	10TS-T33
C31	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C32	.0033		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C33	.0015		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C34	270		DI-270	DD-271	L10T27	CCD-271	B-327	10TS-T27
C35	.0015		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C36	.0015		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C37	.0015		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C38	.0015		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15

Bulova Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA BULOVA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	Switch		300-912					Selector
B	1meg	½						Volume
C	Switch							Power Off-On

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	10K			
R3	27K			
R4	10K			
R5	22K			
R6	10Ω			
R7	1.5meg			
R8	470Ω			
R9	470Ω			
R10	100K			
R11	220K			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R12	1.5meg			
R13	470Ω			
R14	470K			
R15	47K			
R16	10meg			
R17	220K			
R18	470K			
R19	150Ω 1W			
R20	1000Ω 1W			
R21	1000Ω 1W			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA BULOVA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	RF Choke	101-431					
L2	FM RF	101-511					
L3	FM Osc. Prim.	101-510					
L4	FM Osc. Sec.	101-432					
L5	RF Choke	300-303-8					
L6	1st FM IF	4807-6	FM-256	1463-PC	RTC-9050	T654	
L7	Loopstick	300-916-2	BC-419	705-A		T532	
L8	AM Osc.	101-507					
L9	1st AM IF	101-508					
L10A	2nd FM IF	4855-52					
B	2nd AM IF						
L11	Ratio Detector	5807-5	FM-257	1465-PC	RTC-9053	T659	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA BULOVA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2600Ω	3-4Ω	(Part of SP1)	A-3025	A-3332	24S53	S-12X	

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA BULOVA PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	300-945 *	4A07	* Includes Output Transformer

PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

ITEM No.	PART NAME	BULOVA PART No.	NOTES
M1	Tuning Cap. Circuit Board	300-911-1 600-123	4 Gang, FM-AM

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial	300-955	
Knob	101-498	Tuning
Knob	101-497	Inner, Volume
Knob	101-496	Function
Cabinet	600-016-3	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord (Interlock Type) ..... Use BELDEN No. 8874

PHOTOFACT® Folder

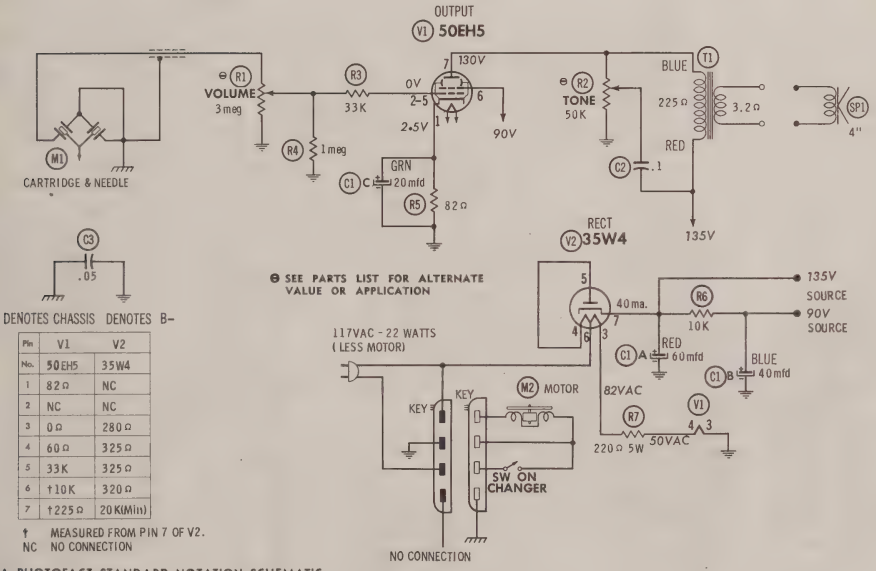
CAPITOL MODEL 124

CAPITOL MODEL 124

TRADE NAME	Capitol Model 124
MANUFACTURER	Capitol Records, Inc., 1 S. Webster Ave., Scranton 5, Pa.
TYPE SET	AC Operated 2 Tube Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110 — 120 Volts AC, 60 Cycles RATING 22 Watts, .2 Amp. @ 117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER — SEE SIMILAR GLASER STEERS GS-77 (REVISED) — PHOTOFACT SET 482 FOLDER 11

CAPITOL MODEL 124



Pin	V1	V2
No.	50EH5	35W4
1	82Ω	NC
2	NC	NC
3	0Ω	280Ω
4	60Ω	325Ω
5	33K	325Ω
6	†10K	320Ω
7	†225Ω	20K(Min)

† MEASURED FROM PIN 7 OF V2.
NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC

©Howard W. Sams & Co., Inc. 1961

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KS807

SET 555 FOLDER 5

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	GENERAL ELECTRIC / RAYTHEON / SYLVANIA TYPE
V1	Output	50EH5
V2	Rectifier	35W4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA CAPITOL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	60	150	160-005	PRS3800	BBRT84215	QT3-6	TCT3119	TDLT-7	TVA-3455
B	40	150							
C	20	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C3	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA CAPITOL PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	3meg	½	VC-308 ①	B-85	A47-3meg-Z	Q13-140	U57	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R2A	50K	½	VC-156 ②	B-31	A47-50K-S	Q11-123	U35	Tone
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

① Some versions may use Part #130-050
② Some versions may use Part #130-027

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R3	33K			
R4	1meg			
R5	82Ω			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R6	10K	PW5-220	5W-SQ-220	
R7	220Ω 5W			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA CAPITOL PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2800Ω	3-4Ω	205-001	A-2928	A-3876	26S58	S-1X	

SPEAKER

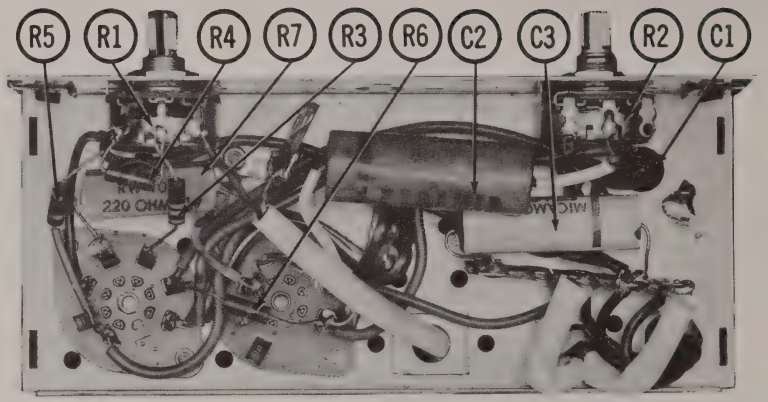
ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA CAPITOL PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	229-002	4A1	

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	REPLACEMENT DATA CAPITOL PART No. CARTRIDGE	CAPITOL PART No. NEEDLE*	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE*	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE*	SONOTONE PART No. CARTRIDGE	SONOTONE PART No. NEEDLE*	NOTES
M1	380-024	381-001 * (LP)	120	N8-3*	46T	Not Req.			
		381-002 * (78RPM)		N8-1 *					

CHASSIS—BOTTOM VIEW



MISCELLANEOUS

ITEM No.	PART NAME	CAPITOL PART No.	NOTES
M2	Motor	376-006	Turntable Drive

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	305-058	Volume
Knob	305-003	Tone
Cabinet	300-124	(Specify Color)

WIRING DATA

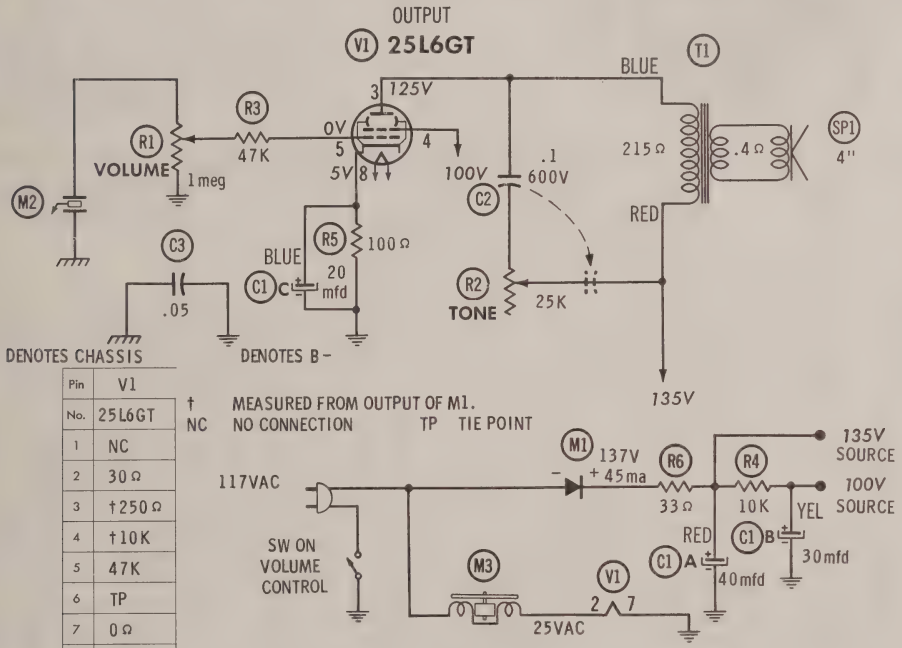
General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No.	1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No.	8401
Phono Pick-up Arm Cable	Use BELDEN No.	8430 (Two Conductor - Twisted)

PHOTOFACT® Folder

COLUMBIA MODELS C1201, C1203

COLUMBIA MODELS
C1201, C1203

TRADE NAME	Columbia Models C1201, C1203
MANUFACTURER	Columbia Phonographs, Dept. of CBS Electronics, 405 Park Ave., New York, N. Y.
TYPE SET	AC Operated One Tube Phono Amplifier With 4 Speed Manual Record Player
POWER SUPPLY	110 – 120 Volts AC, 60 Cycles RATING 32 Watts, .38 Amp. @ 117 Volts AC



Pin No.	V1 25L6GT
1	NC
2	30Ω
3	†250Ω
4	†10K
5	47K
6	TP
7	0Ω
8	100Ω

† MEASURED FROM OUTPUT OF M1.
NC NO CONNECTION TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC

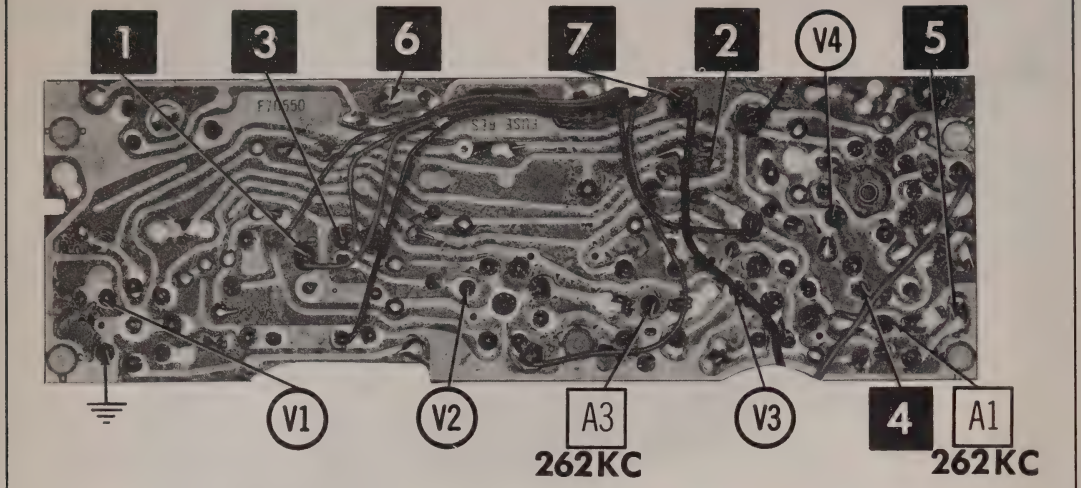
© Howard W. Sams & Co., Inc. 1961

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KR872

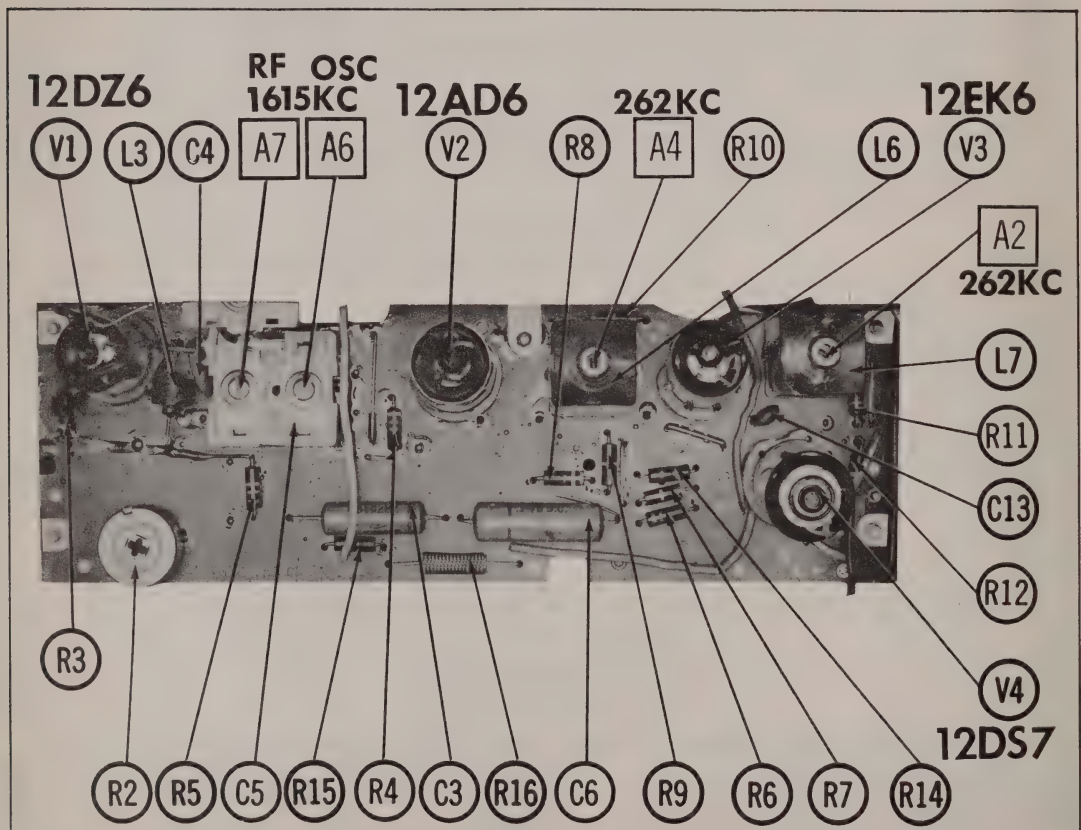
SET 555 FOLDER 6



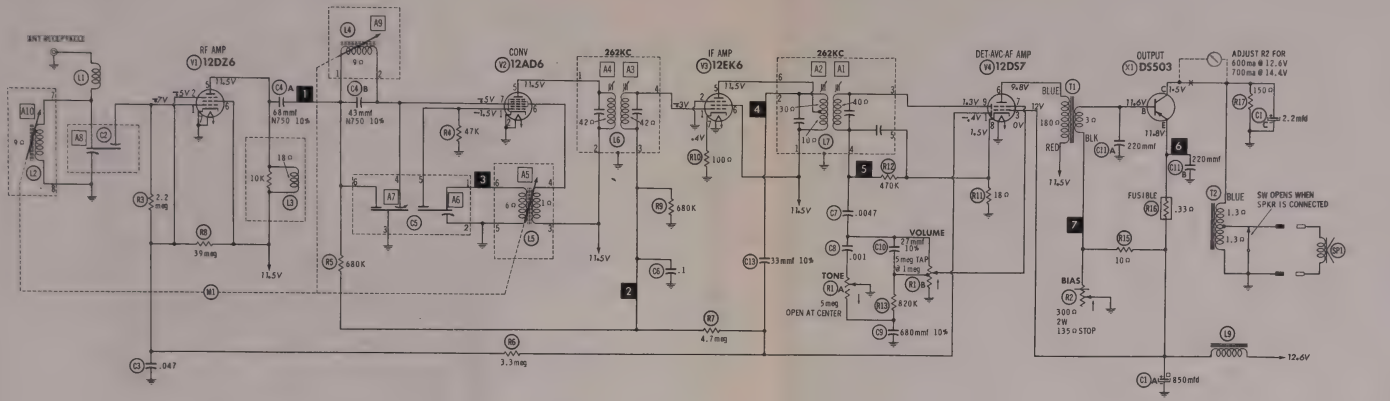
A Howard W. Sams CIRCUITRACE® Photo

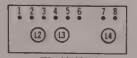
PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



PRINTED BOARD-TOP VIEW

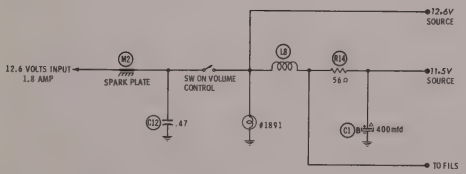




RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12DZ6	9meg	7meg	FIL	FIL	70Ω	50Ω	0Ω		
V2	12AD6	47K	0Ω	FIL	FIL	100Ω	50Ω	1.3meg		
V3	12EK6	680K	0Ω	FIL	FIL	65Ω	50Ω	100Ω		
V4	12DS7	5meg	TP	4Ω	FIL	FIL	240Ω	0Ω	18Ω	470K

TRANSISTOR CIRCUIT RESISTANCE FOR X1 NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

©Howard W. Sams & Co., Inc. 1961

CORVAIR
MODEL 988468

PARTS LIST AND DESCRIPTIONS

TUBES

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amplifier	12DZ6	V3	IF Amplifier	12EK6
V2	Converter	12AD6	V4	Det. -AVC-AF Amp.	12DS7

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA		NOTES
			RCA PART No.	RAYTHEON PART No.	
X1	DS503	Output	2N176		PNP Note 1

Note 1. When replacing, apply silicone grease between transistor and heat sink. Tighten mounting screws securely. Check bias adjustment.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	DELCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	■850	16	7273730	AFH3-54-30			WP300.6		TVLS-3021*
B	▲400	16							
C	2.2	11.5AC							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2		#7275275						
C3	.047 75V		P288N-047	DD-503	CUB2S47	1DP-2-473	GEM-4147	2TM-S47
C4A	68 N750 10%		N750-DI 68	TCN-68	C10Q68U	CCTN-680	CN7-468	10TCU-Q68
B	43 N750 10%		N750-DI 39	TCN-43	C10Q43U	CCTN-390	CN7-439	10TCU-Q39
C5		#7276498						
C6	.1 75V		P288N-1	DF-104	CUB2P1	1DP-2-104	GEM-201	2TM-P10
C7	.0047 200V		P288N-0047	D6-472	CUB6D47	6DP-1-472	GEM-6247	6TM-D47
C8	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C9	680 10%		DI-680	DD-681	5R5T68	CCD-681	GP368	10TS-T68
C10	27 10%		DI-27	DD-270	L10Q27	CCD-270	GP427	10TS-Q27
C11A	220		DI-220	DD-221	L10T22	CCD-221	B-322	10TS-T22
B	220		DI-220	DD-221	L10T22	CCD-221	B-322	10TS-T22

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C12	.47 200V		P288N-47		CUB2P47	1DP-4-474	GEM-2047	2TM-P47
C13	33 10%		DI-33	DD-330	L10Q33	CCD-330	GP433	10TS-Q33

\# Delco Part Number.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	DELCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	5meg *		7278296					Tone
B	5meg							Volume
	1meg Tap							
C	Switch							Power Off-On
R2	300Ω	2(WW)	7275474 ①					Bias
	135Ω Stop							

* Open at Center of Range (2.5meg each end).
① Temperature Compensated.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R3	2.2meg				R11	18Ω			
R4	47K				R12	470K			
R5	680K				R13	820K			
R6	3.3meg				R14	56Ω			
R7	4.7meg				R15	10Ω			
R8	39meg				R16	.33Ω			Pt. #7276499
R9	680K				R17	150Ω			
R10	100Ω								

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		DELCO PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	RF Choke(6.5uh)	7255738	BC-565	4610	RTC-8520	T859	* Wound on 10K
L2	Ant.	1221138					† Parallel with 10K
L3	RF Choke (1.8MH)	7269684 *	BC-514 †	4664†	RTC-8533†	T875 †	
L4	RF	1221138					
L5	Osc.	1221151					
L6	Input IF	1221257	BC-344	13-PH1	RTC-8644	T855	

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF) (cont)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		DELCO PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L7 L8	Output IF Hash Choke(1. 4uh	1221255 7275516	BC-424				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ~)	DELCO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
L9	. 700A	. 7Ω	. 011 HY	7274342		TC-2			

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	DELCO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	6. 8	1	1221590		TA-48			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA					NOTES
	PRI.	DELCO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	8Ω Tap@ 3-4Ω	1221535		TA-50			

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	DELCO PART No.	QUAM PART No.	
SP1	6"x 9"	PM	3-4Ω	7275558	69A2	

MISCELLANEOUS

ITEM No.	PART NAME	DELCO PART No.	NOTES
M1 M2	Tuner Spark Plate	1221509	Pushbutton Type, Series P2

CABINETS & CABINET PARTS

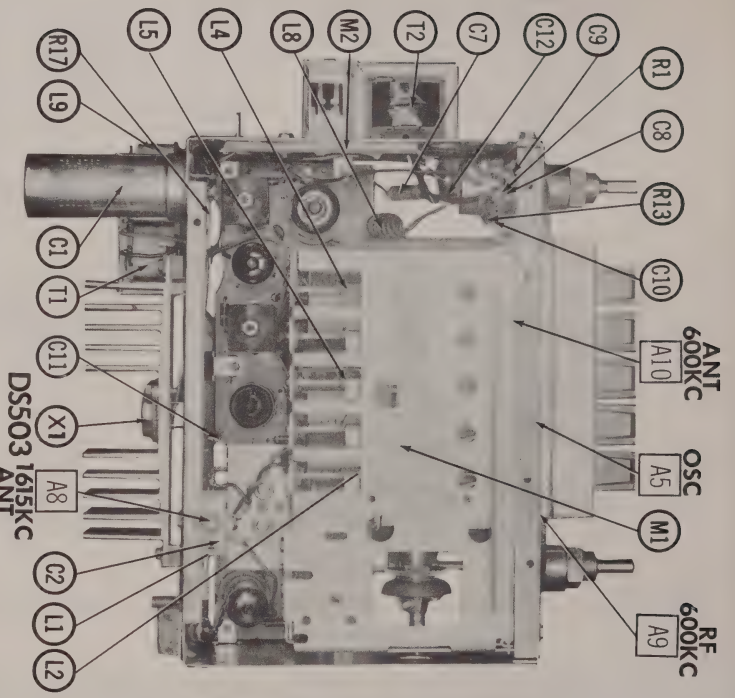
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Pointer	1221537	
C Pushbutton	7278478	
H Pushbutton	7278200	
E Pushbutton	7278201	
V Pushbutton	7278202	
Y Pushbutton	7278203	
Knob	7277055	Tuning, Volume
Knob	7272970	Tone
Knob	7274782	Dummy

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire .....Use BELDEN No. 8885
Bonding Strap .....Use BELDEN No. 8661

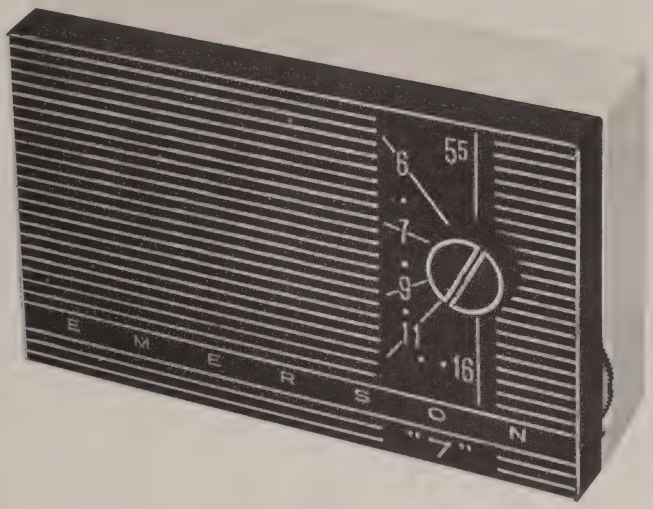
CHASSIS—TOP VIEW



PHOTOFACT® Folder with CIRCUITRACE®

**EMERSON MODEL
977 (Ch. 120528)**

EMERSON MODEL
977 (Ch. 120528)



EMERSON MODEL
977 (Ch. 120528)

TRADE NAME	Emerson Model 977 (Falcon) Ch. 120528
MANUFACTURER	Emerson Radio & Phono Corp., 524 W. 23rd Street, New York 11, N. Y.
TYPE SET	Battery Operated Transistorized Portable AM Receiver
POWER SUPPLY	6 Volts DC RATING 11MA@6 Volts DC (No Signal, Min. Volume)
TUNING RANGE—BROADCAST	540 — 1620KC 15MA@6 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A3.....GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A4, A6.....GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520
A5.....GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

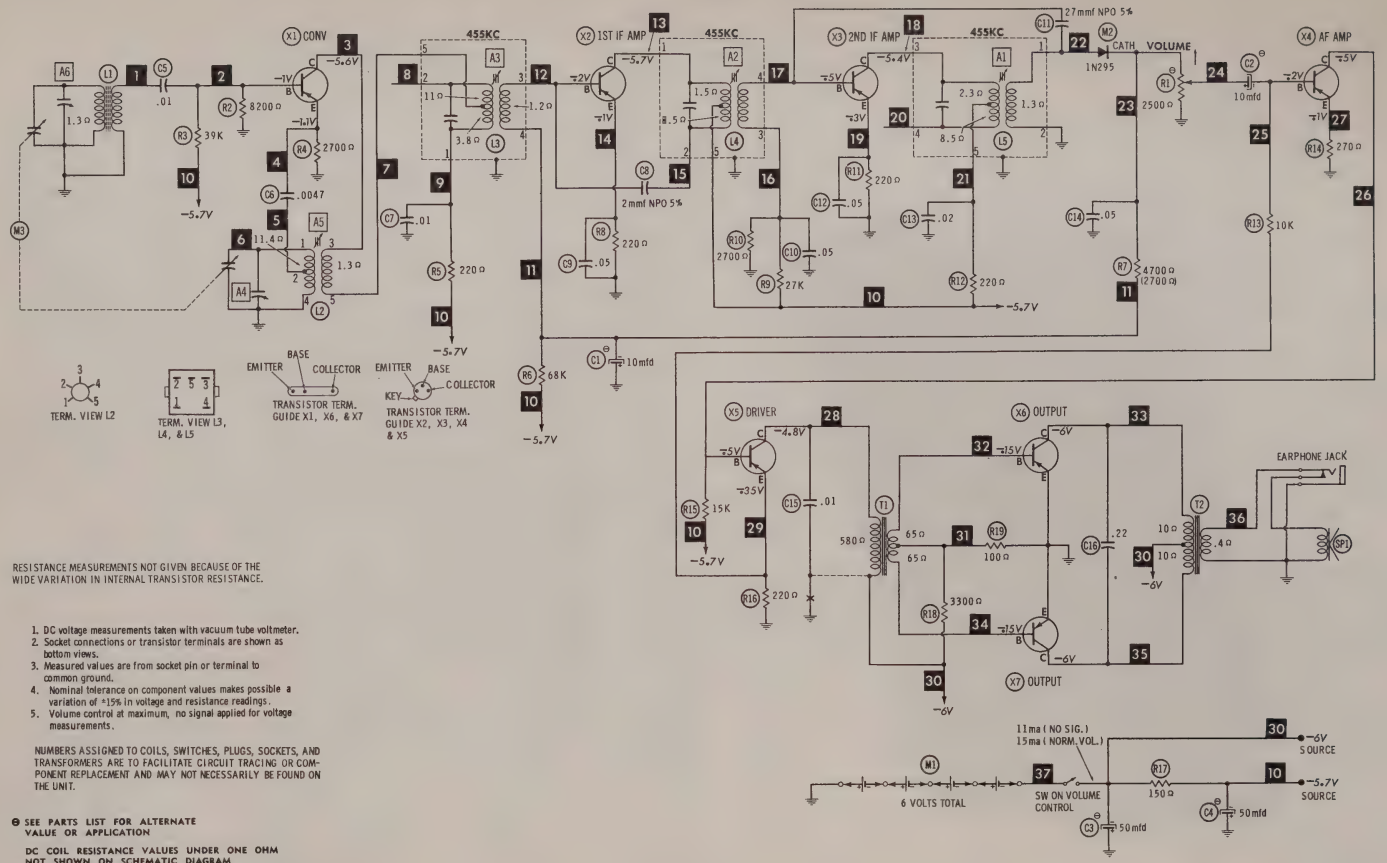
	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to antenna stator lug of tuning gang. Low side to chassis.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Adjust for maximum output.
2.	Fashion loop of several turns of wire and radiate signal into loop of receiver.	1640KC	Tuning gang fully open.	"	A4	"
3.	"	600KC	600KC	"	A5	"
4.	"	1400KC	1400KC	"	A6	Adjust for maximum output. Repeat Steps 2, 3 and 4.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KF757

SET 555 FOLDER 8



RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

© Howard W. Sams & Co., Inc. 1961

EMERSON MODEL 977 (Ch. 120528)

A Howard W. Sams CIRCUITRACE® Photo

PRINTED BOARD

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	MFGR'S PART NO.	USE	REPLACEMENT DATA		NOTES
			RCA PART No.	RAYTHEON PART No.	
X1	815077	Converter			PNP
X2	815078	1st IF Amplifier			PNP
X3	815079	2nd IF Amplifier			PNP
X4	815080	AF Amplifier			PNP
X5	815081	Driver			PNP
X6	815082	Output			PNP
X7	815082	Output			PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	EMERSON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	10	10	Note 1	PTT39	NLW10-15	MT1-5	TT12X10	MLV10-10	TE-1114
C2	10	10	Note 2	PTT39	NLW10-15	MT1-5	TT12X10	MLV10-10	TE-1114
C3	50	10	Note 3	PTT45	NLW50-10	MT1-16	TT10X50	MLV50-10	TE-1119
C4	50	10	Note 4	PTT45	NLW50-10	MT1-16	TT10X50	MLV50-10	TE-1119

Note 1. Some versions may use 3V unit in this application (Part #925464).
Note 2. Some versions may use 3V unit in this application (Part #925486).
Note 3. C3 and C4 may be a 2 section unit in some versions (Part #925516 or 925468).

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C6	.0047		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C7	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C8	2 NPO 5%		NPO-DI 2.0	DTN-2R2	C10V2C	CCTO-2R2	CNO-522	10TCC-V22
C9	.05		BPD-05	DD-503	H-05S5		TA-150	TG-S50
C10	.05		BPD-05	DD-503	H-05S5		TA-150	TG-S50
C11	27 NPO 5%			TCZ-27	C10Q27C	CCTO-270	CNO-427	10TCC-Q27
C12	.05		BPD-05	DD-503	H-05S5		TA-150	TG-S50
C13	.02		BPD-02	DD-203	BYB6S2	CCD-203	TA-120	5HK-S20
C14	.05		BPD-05	DD-503	H-05S5		TA-150	TG-S50
C15	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C16	.22 50V		V64C2P22		DPMS2P22	1DP-3-224	GEM-2022	2TM-P22

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	EMERSON PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A B	2500Ω Switch	½	390581 ①					Volume Power Off-On

① Alternate Part #390584.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	8200Ω				R11	220Ω			
R3	39K				R12	220Ω			
R4	2700Ω				R13	10K			
R5	220Ω				R14	270Ω			
R6	68K				R15	15K			
R7	4700Ω			(2700Ω) *	R16	220Ω			
R8	220Ω				R17	150Ω			
R9	27K				R18	3300Ω			
R10	2700Ω				R19	100Ω			

* Alternate Value.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		EMERSON PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Loopstick	700165					
L2	Osc.	716137					
L3	1st IF	720368					
L4	2nd IF	720369					
L5	3rd IF	720376					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	EMERSON PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1.7	1	734197					

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	EMERSON PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	700Ω CT	3-4Ω	734198		TA-25			

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	EMERSON PART No.	QUAM PART No.	
SP1	3"	PM	3-4Ω	180235		

BATTERIES

ITEM No.	VOLTAGE	EMERSON PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1.5V			930		1015		M-15R	4 Required

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		EMERSON PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	
M2	1N295	817069		1N295	Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	EMERSON PART No.	NOTES
M3	Tuning Cap.	900202	2 Gang

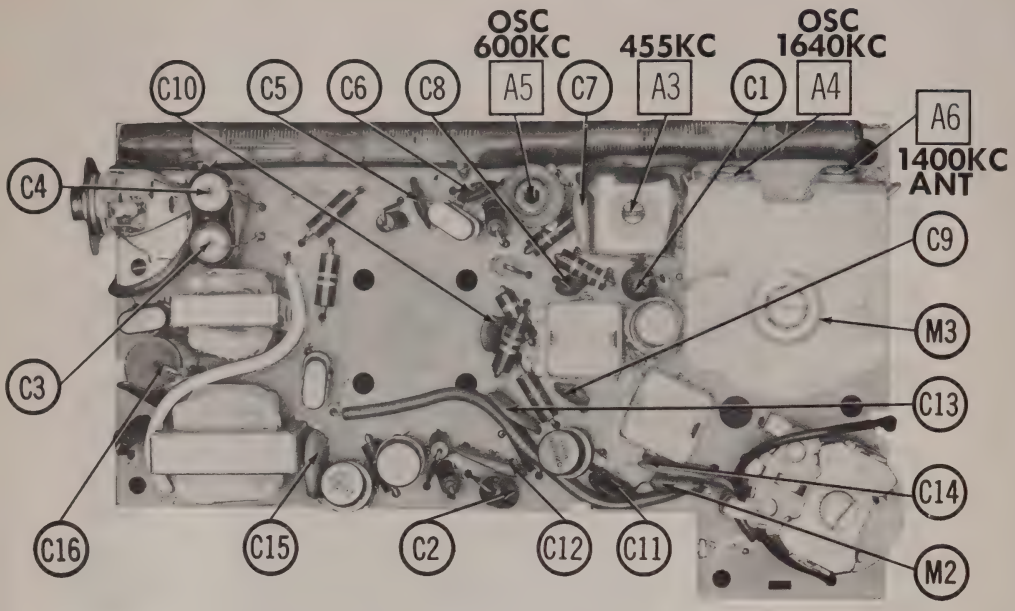
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

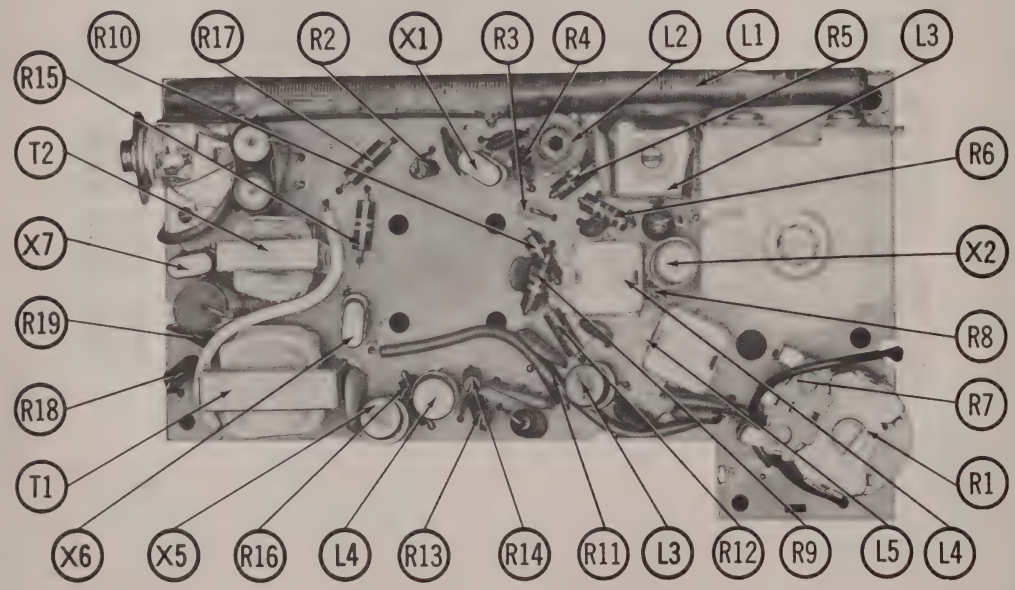
NAME	PART NO.	DESCRIPTION
Knob	461313	Tuning, Ivory
Knob	461313A	Tuning, Ebony
Knob	461072	Volume
Cabinet Front	141147	Ivory
Cabinet Front	141147A	Ebony
Cabinet Back	141148	Ivory
Cabinet Back	141148A	Ebony

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors



CHASSIS TOP VIEW-ALIGN., CAPACITOR & MISC. IDENT.

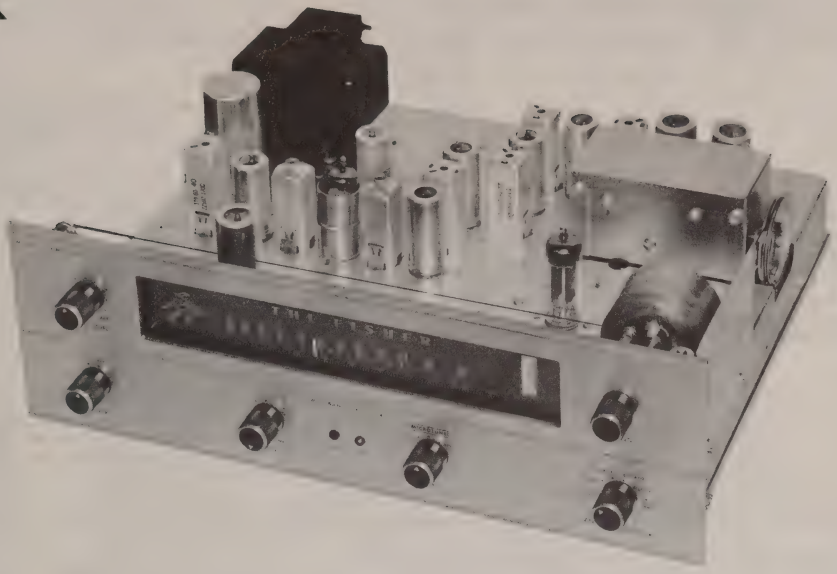


CHASSIS TOP VIEW-RESISTOR, INDUCTOR & TRANSISTOR IDENT.

PHOTOFACT® Folder

FISHER
MODEL FM-200

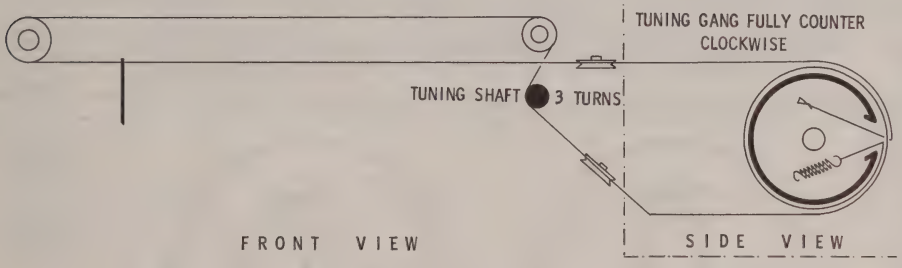
FISHER
MODEL FM-200



FISHER
MODEL FM-200

TRADE NAME	Fisher Model FM-200
MANUFACTURER	Fisher Radio Corp., 21-21 44th Drive, Long Island City 1, N. Y.
TYPE SET	AC Operated 11 Tube FM Tuner
POWER SUPPLY	105 — 120 Volts AC, 50-60 Cycles RATING 54 Watts, .5 Amp. @ 117 Volts AC
TUNING RANGE — FREQ. MOD.	88 — 108MC

DIAL CORD STRINGING



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KJ808

SET 555 FOLDER 9

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.
Muting and AFC switches off.
Suggested Alignment Tools:

A1, A2, A3, A12 thru A15... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

A4 thru A11..... GENERAL CEMENT #5097, 8727
WALSCO #2515

A16..... GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528

A17, A18..... GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538

IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side to ungrounded tube shield over Mixer-Osc. tube. Low side to chassis.	10.7MC (Unmod.)	Point of non-interference.	DC probe to point (A). Common to chassis.	A1, A2, A3, A4, A5, A6, A7, A8, A9, A10, A11	Adjust for maximum deflection.
2.	"	"	"	DC probe to point (B). Common to chassis.	A12	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
1.	High side to ungrounded tube shield over Mixer-Osc. tube. Low side to chassis.	10.7MC (450KC Swp)	Point of non-interference.	Vert. amp. to point (A). Low side to chassis.	A1, A2, A3, A4, A5, A6, A7, A8, A9, A10, A11	Disconnect stabilizing capacitor C3. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C3.
2.	"	"	"	"	A12	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A1 for maximum amplitude and straightness of cross-over lines.

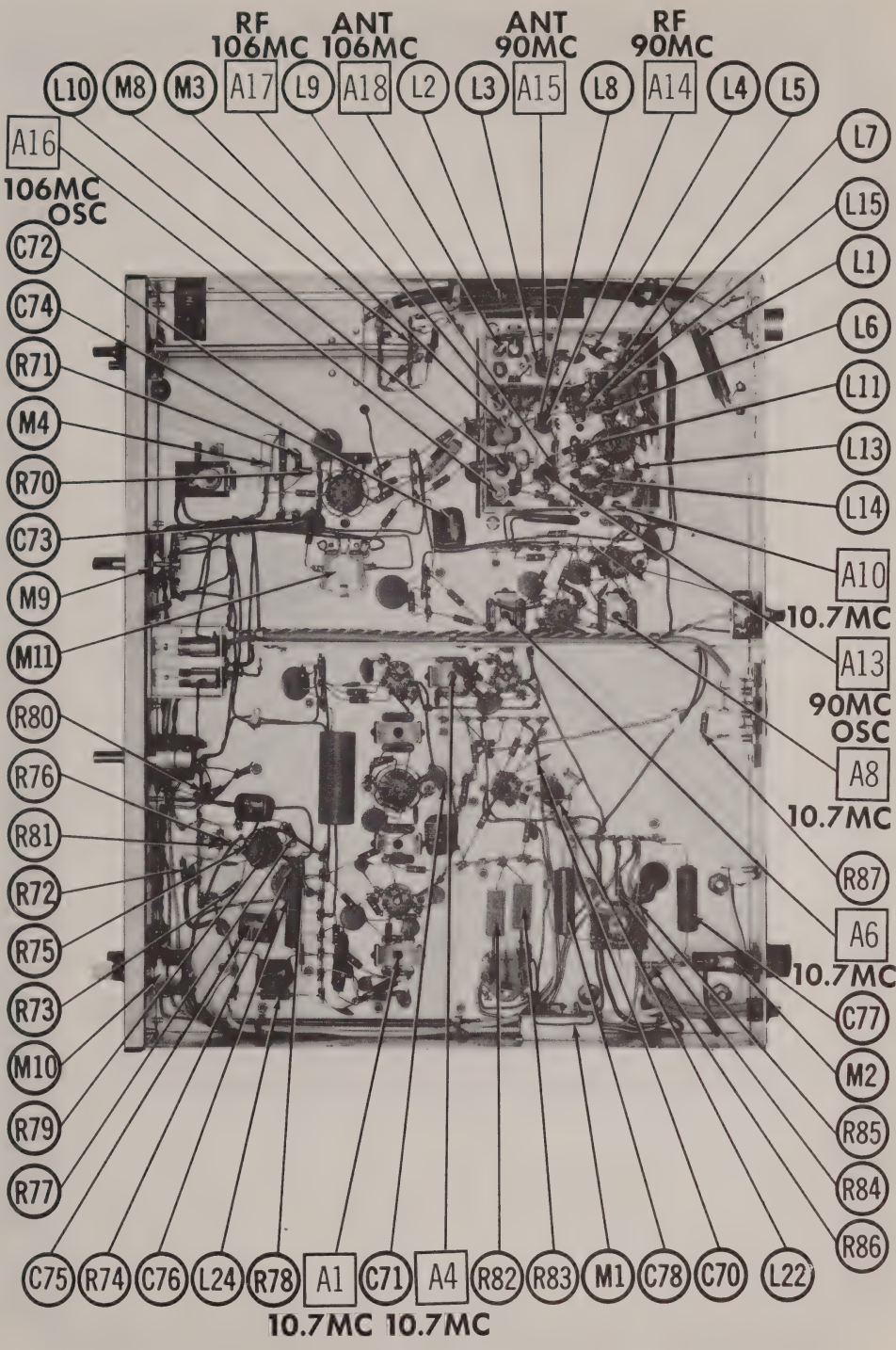
RF ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
3.	Across 300Ω antenna terminals with 120Ω in each lead.	90MC (Unmod.)	90MC	DC probe to point (A). Common to chassis.	A13, A14, A15	Adjust for maximum deflection.
4.	"	106MC	106MC	"	A16, A17, A18	Adjust for maximum deflection. Repeat Steps 3 and 4.

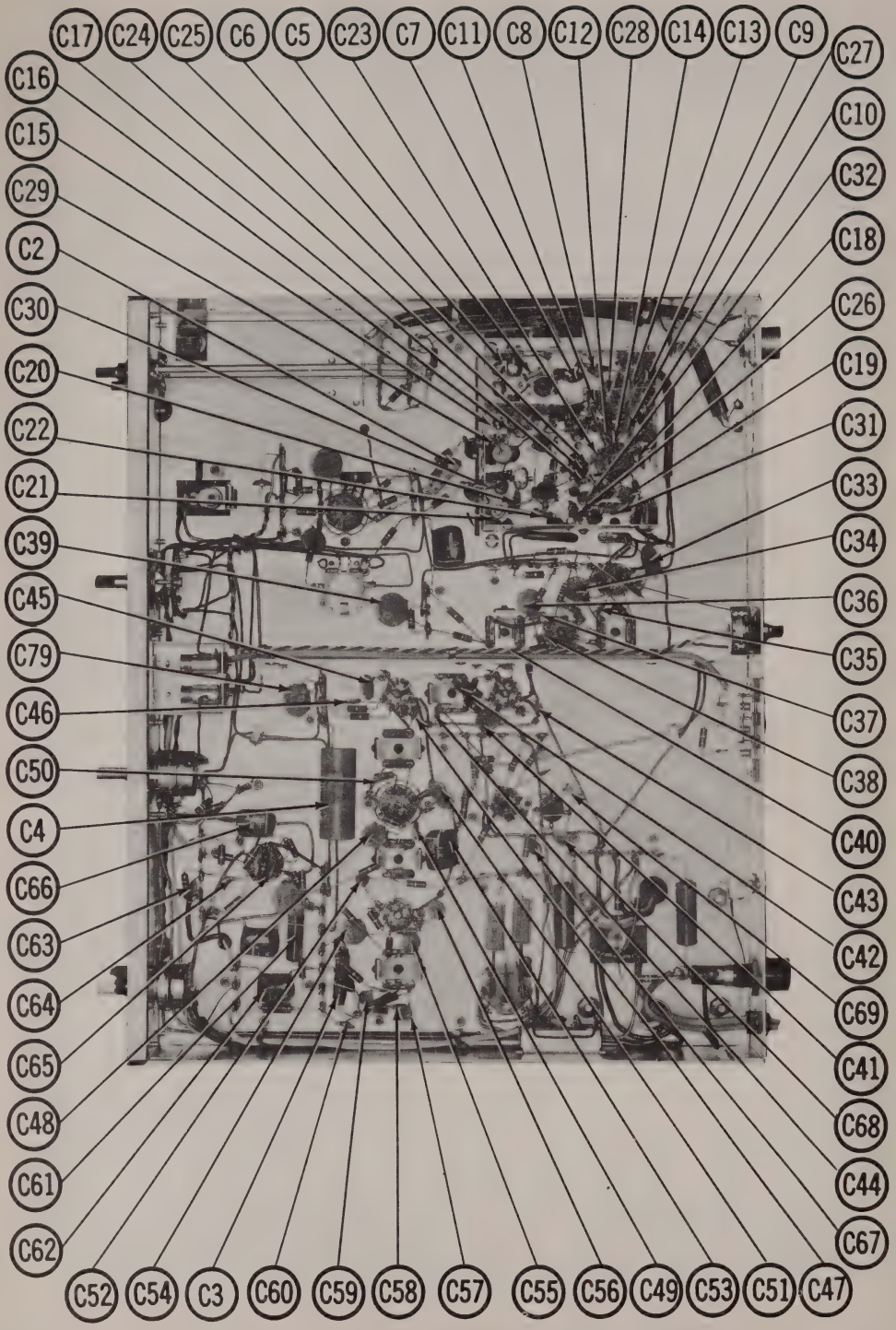
MUTING OSCILLATOR (V8): If adjustment is necessary, tune L22 for 3mc with a grid-dip meter.

FIG. 1

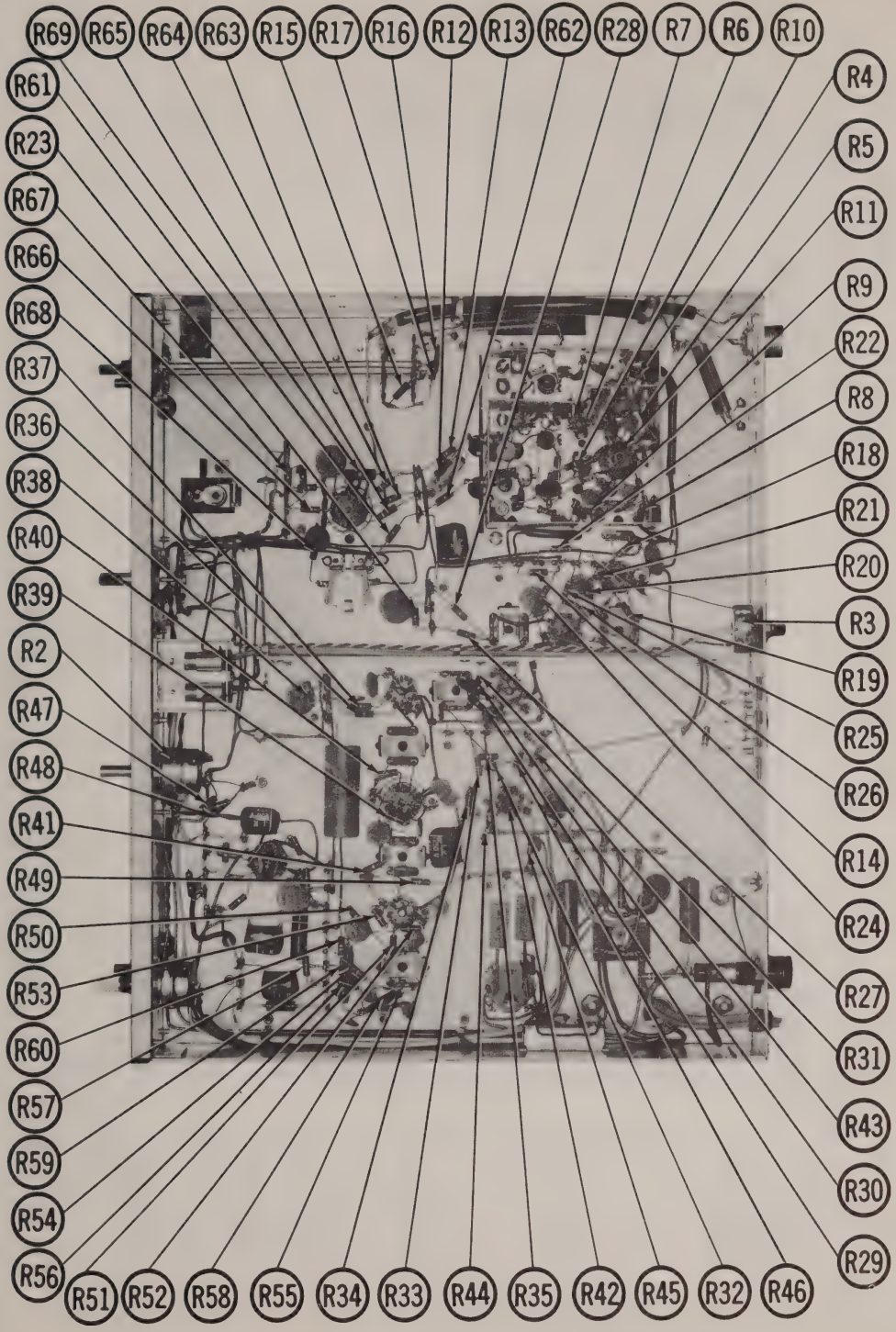
FIG. 2



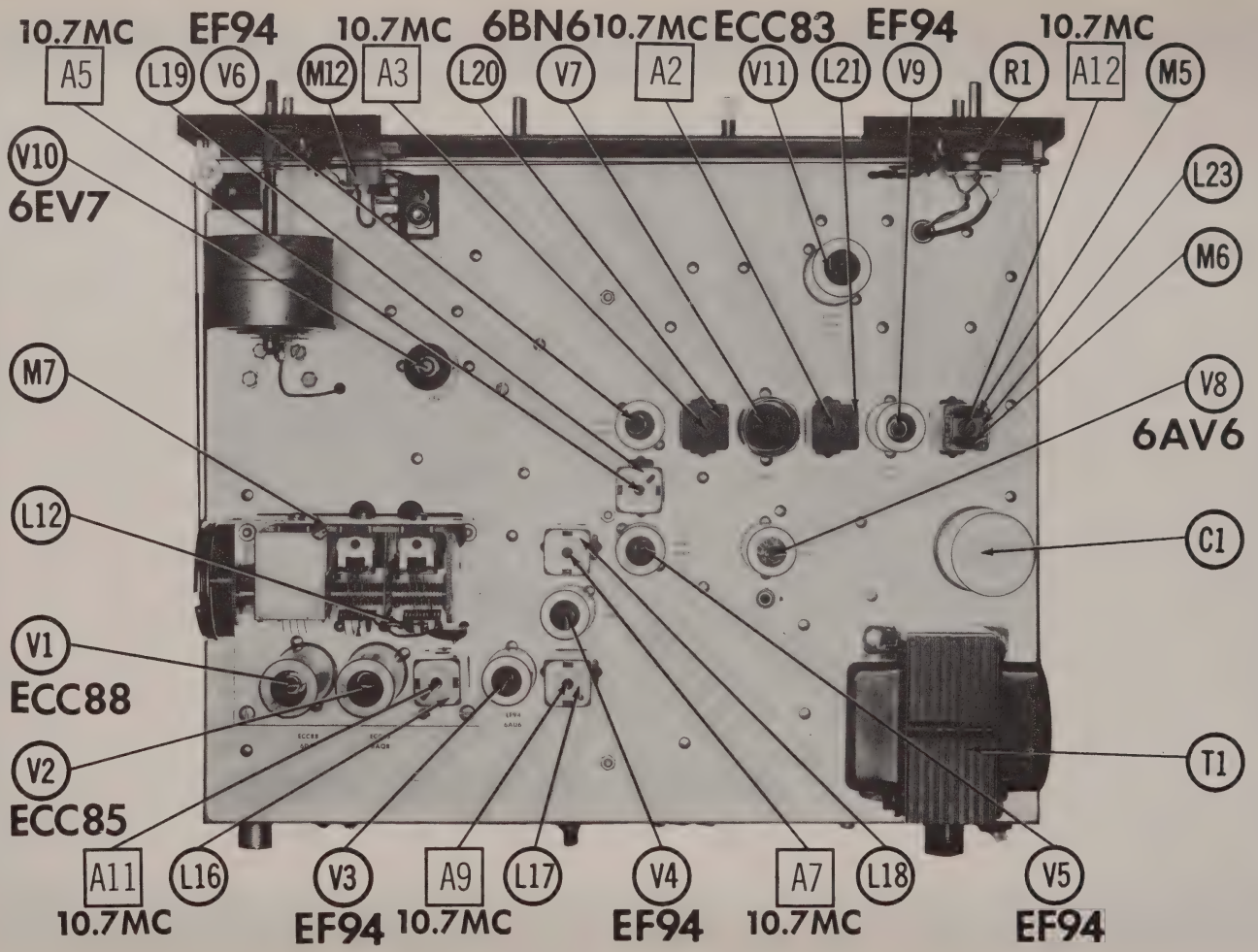
CHASSIS BOTTOM VIEW — ALIGN., CAPACITOR(C70-C78), RESISTOR(R 70-R87), INDUCTOR & MISC. IDENT.



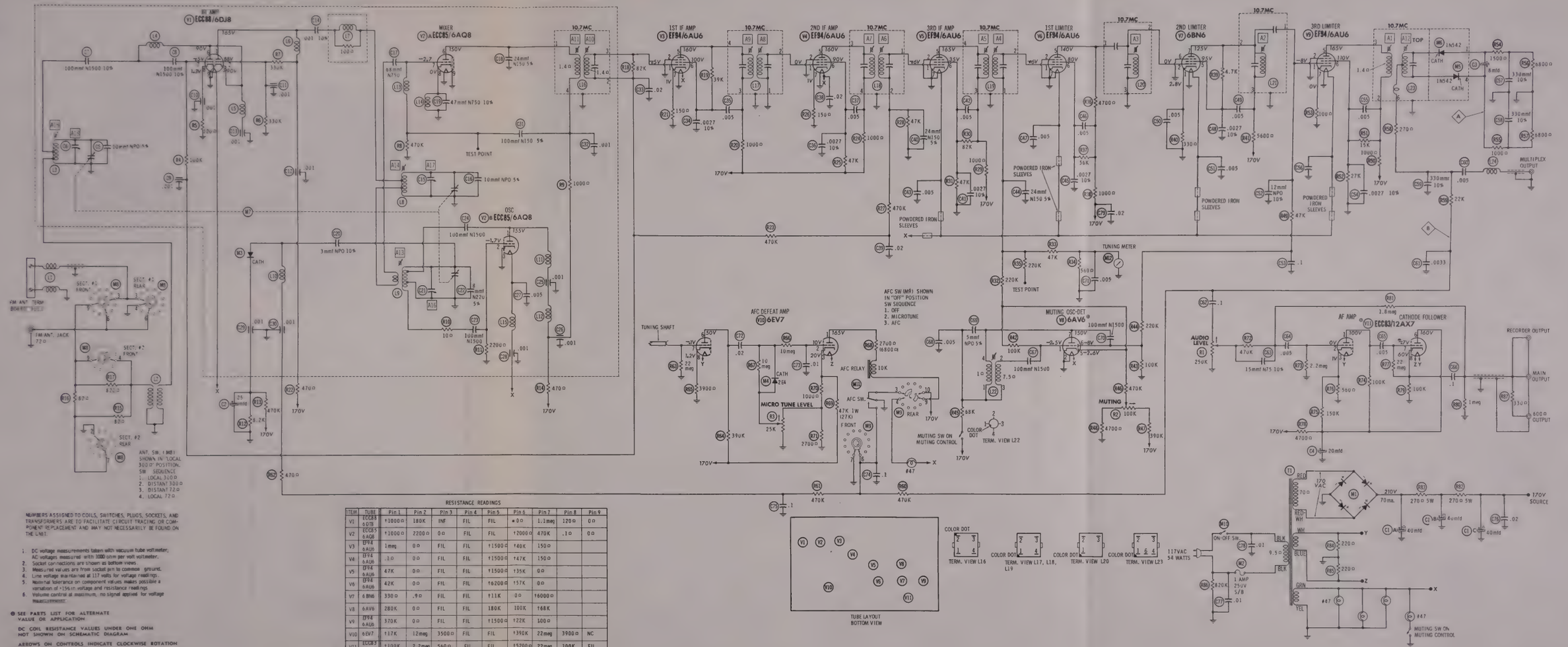
CHASSIS BOTTOM VIEW-CAPACITOR IDENT. (C2-C69, C79)



CHASSIS BOTTOM VIEW-RESISTOR IDENT. (R2-R69)



CHASSIS-TOP VIEW



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurement.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION CONTROL VIEWED FROM SHAFT END

A PHOTOFACT STANDARD NOTATION SCHEMATIC

©Howard W. Sams & Co., Inc. 1961

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC88 6DJ8	*1000Ω	180K	INF	FIL	FIL	●0Ω	1.1meg	120Ω	0Ω
V2	ECC85 6AQ8	*1000Ω	2200Ω	0Ω	FIL	FIL	†2000Ω	470K	.1Ω	0Ω
V3	EF94 6AU6	1meg	0Ω	FIL	FIL	†1500Ω	†40K	150Ω		
V4	EF94 6AU6	.1Ω	0Ω	FIL	FIL	†1500Ω	†47K	150Ω		
V5	EF94 6AU6	47K	0Ω	FIL	FIL	†1500Ω	†35K	0Ω		
V6	EF94 6AU6	42K	0Ω	FIL	FIL	†6200Ω	†57K	0Ω		
V7	6BN6	330Ω	.9Ω	FIL	FIL	†11K	0Ω	†6000Ω		
V8	6AV6	280K	0Ω	FIL	FIL	180K	100K	†68K		
V9	EF94 6AU6	370K	0Ω	FIL	FIL	†1500Ω	†22K	100Ω		
V10	6EV7	†17K	12meg	3500Ω	FIL	FIL	†390K	22meg	3900Ω	NC
V11	ECC83 12AX7	*100K	2.2meg	560Ω	FIL	FIL	†5200Ω	22meg	100K	FIL

ALL MEASUREMENTS MADE WITH MUTING AND MICROTUNE ON.
● MEASURED FROM CATHODE
■ MEASURED FROM PIN 3 OF V1.
† MEASURED FROM OUTPUT OF M1.
NC NO CONNECTION

FISHER
MODEL FM-200

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE
V1	RF Amplifier	ECC88/6DJ8
V2	Mixer-Osc.	ECC85/6AQ8
V3	1st IF Amplifier	EF94/6AU6
V4	2nd IF Amplifier	EF94/6AU6
V5	3rd IF Amplifier	EF94/6AU6
V6	1st Limiter	EF94/6AU6

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆

ITEM No.	USE	TYPE
V7	2nd Limiter	6BN6
V8	Muting Osc. -Det.	6AV6 (EBC91) *
V9	3rd Limiter	EF94/6AU6
V10	AFC Defeat Amp.	6EV7
V11	AF Amp. -Cath. Follower	ECC83/12AX7 (7025) *

* Alternate.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	FISHER PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	▲40	300	C50180-24	AFH4-02			FP327.89	TMD-2315	TVL-3583
B	■40	300						TD-40-350	
C	▲40	300							
C2	25	6	C639-114	PTT26	NLW25-6	MT1-10	TT6X25	MLV25-6	TE-1091
C3	8	50	C629-138	PTT91	NLW8-50	MT1-6	TC41	MLV10-50	TE-1303.3
C4	20	250	C746-145	PRS1570	BR2025	QT1-9	TC55	TD-20-250	TVA-1508

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	10 NPO 5%		NPO-SI 10	TCZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C6		#C662-123						
C7	100 N1500 10%	#C50070-6		TCL-100		*		
C8	100 N1500 10%	#C50070-6		TCL-100		*		
C9	.001		EF-001	MFT-1000		CCF-102	CT280A	
C10	.001		EF-001	MFT-1000		CCF-102	CT280A	
C11	.001		EF-001	MFT-1000		CCF-102	CT280A	
C12	.001		EF-001	MFT-1000		CCF-102	CT280A	
C13	.001		EF-001	MFT-1000		CCF-102	CT280A	
C14	.001 10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C15		#C662-123						
C16	10 NPO 5%		NPO-SI 10	TCZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C17	68 N750		N750-SI 68	TCN-68	C10Q68U	CCTN-680	CN7-468	10TCU-Q68
C18	24 N150 5%	#C50070-8				*		
C19	47 N750 10%		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C20	3 NPO 10%		NPO-DI 3.0	DTZ-3R3	C10V3C	CCTO-3R3	CNO-533	10TCC-V3S
C21		#C662-123						
C22	8 N220 5%	#CC20RJ080D5				*		10TCR-V82
C23	100 N1500	#C50070-6		TCL-100		*		
C24	100 N1500	#C50070-6		TCL-100		*		
C25	.001		EF-001	MFT-1000		CCF-102	CT280A	
C26	.001		EF-001	MFT-1000		CCF-102	CT280A	
C27	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C28	.001		EF-001	MFT-1000		CCF-102	CT280A	
C29	.001		EF-001	MFT-1000		CCF-102	CT280A	
C30	.001		EF-001	MFT-1000		CCF-102	CT280A	
C31	100 N150 5%	#C50070-19				*		10TCP-T10

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C32	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C33	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C34	.0027 10%		DI-2700		DPMS6D27	CCD-272		10TS-D27
C35	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C36	.0027 10%		DI-2700		DPMS6D27	CCD-272		10TS-D27
C37	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C38	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C39	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C40	24 N150 5%	#C50070-8				*		
C41	.0027 10%		DI-2700		DPMS6D27	CCD-272		10TS-D27
C42	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C43	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C44	24 N150 5%	#C50070-8				*		
C45	.0027 10%		DI-2700		DPMS6D27	CCD-272		10TS-D27
C46	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C47	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C48	.0027 10%		DI-2700		DPMS6D27	CCD-272		10TS-D27
C49	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C50	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C51	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C52	12 NPO 10%			TCZ-12	C10Q12C	CCTO-120	CNO-412	10TCC-Q12
C53	.1 250V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C54	.0027 10%		DI-2700		DPMS6D27	CCD-272		10TS-D27
C55	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C56	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C57	330 10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C58	330 10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C59	330 10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C60	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C61	.0033 200V		P288N-0033	D6-332	CUB6D33	6DP-1-332	GEM-6233	6TM-D33
C62	.1 250V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C63	15 N75 10%	#C746-145				*		
C64	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C65	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C66	.1 250V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C67	100 N1500	#C50070-6		TCL-100		*		
C68	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C69	5 NPO 5%		NPO-SI 5.0	TCZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C70	100 N1500	#C50070-6		TCL-100		*		
C71	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C72	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C73	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C74	.1 250V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C75	.1 250V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C76	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C77	.01 600V		P688N-01	D6-103	CUB6S1	6DP-2-103	GEM-611	6TM-S10
C78	.01 600V		P688N-01	DD-103	CUB6S1	6DP-2-103	GEM-611	6TM-S10

\# Fisher Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	FISHER PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	250K	½	R50160-64	B-51	A47-250K-Z	Q13-130	U44	Audio Level
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R2A	100K	½	R50160-63	B-41	A47-100K-Z	Q13-128	U39	Muting
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KR-2	SWE-20	76-2	US-27	Muting Switch
R3A	25K	½	R50103-2	AB-26	A47-25K-S	Q11-120	SU-29	Micro Tune Level
B	Shaft			AK-1	FKS-1/4	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R4	100K				R46	470K			
R5	120Ω				R47	390K			
R6	330K				R48	4700Ω			
R7	330K				R49	47K			
R8	470K				R50	1000Ω			
R9	1000Ω				R51	15K			
R10	10Ω				R52	27K			
R11	2200Ω				R53	100Ω			
R12	8200Ω				R54	1500Ω			
R13	470K				R55	1000Ω			
R14	470Ω				R56	6800Ω			
R15	82Ω				R57	6800Ω			
R16	82Ω				R58	270Ω			
R17	820Ω				R59	22K			
R18	82K				R60	470K			
R19	39K				R61	470K			
R20	1000Ω				R62	470Ω			
R21	150Ω				R63	22meg			
R22	470Ω				R64	390K			
R23	470K				R65	3900Ω			
R24	1000Ω				R66	10meg			
R25	47K				R67	10meg			
R26	150Ω				R68	2700Ω			(6800Ω) *
R27	470K				R69	47K 1W			(27K) *
R28	47K				R70	1000Ω			
R29	1000Ω				R71	2700Ω			
R30	82K				R72	470K			
R31	47K				R73	2.2meg			
R32	220K				R74	100K			
R33	47K				R75	150K			
R34	560Ω				R76	560Ω			
R35	220K				R77	22meg			
R36	4700Ω				R78	4700Ω			
R37	56K				R79	100K			
R38	1000Ω				R80	1meg			
R39	4700Ω				R81	1.8meg			
R40	330Ω				R82	270Ω 5W	PW5-270	5W-SQ-270	
R41	5600Ω				R83	270Ω 5W	PW5-270	5W-SQ-270	
R42	100K				R84	220Ω			
R43	100K				R85	220Ω			
R44	220K				R86	820K			
R45	68K				R87	330Ω			

* Alternate Value

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		FISHER PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Ant. Matching	L509-139					① Wound on 100Ω
L2	Ant. Matching	L509-139					
L3	Ant.	L726-129					
L4	RF Choke (luh)	L50066-2	BC-561	4602	RTC-8515	T855	
L5	RF Choke (. 56uh)	L50066-19	BC-560	4590	RTC-8513	T802	
L6	RF Choke (. 56uh)	L50066-19	BC-560	4590	RTC-8513	T802	
L7	RF Choke	L629-180 ①					
L8	RF	L726-126					
L9	Osc.	L726-125					
L10	RF Choke(luh)	L50066-2	BC-561	4602	RTC-8515	T855	
L11	RF Choke (luh)	L50066-2	BC-561	4602	RTC-8515	T855	
L12	RF Choke (luh)	L50066-2	BC-561	4602	RTC-8515	T855	
L13	RF Choke (luh)	L50066-2	BC-561	4602	RTC-8515	T855	
L14	RF Choke (. 56uh)	L50066-19	BC-560	4590	RTC-8513	T802	
L15	FIL Choke (luh)	L50066-2	BC-561	4602	RTC-8515	T855	
L16	1st IF	ZZ662-117	FM-254	1463	RTC-8599	T633	
L17	2nd IF	ZZ50210-2	FM-254	1463	RTC-8599	T633	
L18	3rd IF	ZZ50210-2	FM-254	1463	RTC-8599	T633	
L19	4th IF	ZZ50210-4	FM-254	1463	RTC-8599	T633	
L20	1st Limiter	L670-145					
L21	2nd Limiter	L670-145					
L22	Muting Osc.	C50210-22					
L23	Ratio Detector	ZZ592-170	FM-255	1465	RTC-8600	T635	
L24	RF Choke (3. 3uh)	L5066-8	BC-564	4608	RTC-8518	T858	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	FISHER PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V ② . 5A	170V ② . 090A AC	6. 3V ② . 6A	T840-115					
	SEC. 3	SEC. 4	SEC. 5						
	6. 3V ② 3. 6A								

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT (Measured)	FISHER PART No.	RCA PART No.	SARKES TARZIAN PART No.	
M1	. 070A	SR50279-1			

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			FISHER PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	1A 250V S/B	F692-132		313001 (3AG 1A 250V S/B)	342001	MDL 1	HKP

PARTS LIST AND DESCRIPTIONS (Continued)

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		FISHER PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	
M3	6.8SC20	V-726-130			AFC
M4	2E4	SR762-117			
M5	1N542	V-1N542		1N295	Ratio Det. (Matched Pair)
M6	1N542	V-1N542		1N295	

MISCELLANEOUS

ITEM No.	PART NAME	FISHER PART No.	NOTES
M7	Tuning Cap.	C726-116	3 Gang
M8	Switch	S840-121	Antenna Selector
M9	Switch	S766-134	AFC
M10	Switch	S766-133-1	Power Off-On
M11	Relay	K50276-1	Includes Switch
M12	Meter	M766-137	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Glass	N840-108	
Knob	E50224-1	Tuning
Knob	E50224-2	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder with CIRCUITRACE®

GENERAL ELECTRIC MODELS RP1155A, RP1155C, RP1170A

GENERAL ELECTRIC MODELS
RP1155A, RP1155C, RP1170A

MODEL RP1170A

GENERAL ELECTRIC MODELS
RP1155A, RP1155C, RP1170A

TRADE NAME	General Electric Models RP1155A, RP1155C, RP1170A
MANUFACTURER	General Electric Co., Product Service, Audio Products Section, 2200 N. 22nd St., Decatur, Illinois
TYPE SET	AC Operated 4 Tube Stereo Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	105 – 120 Volts AC, 60 Cycles RATING 70 Watts, .67 Amp. @ 117 Volts AC (Less Motor)

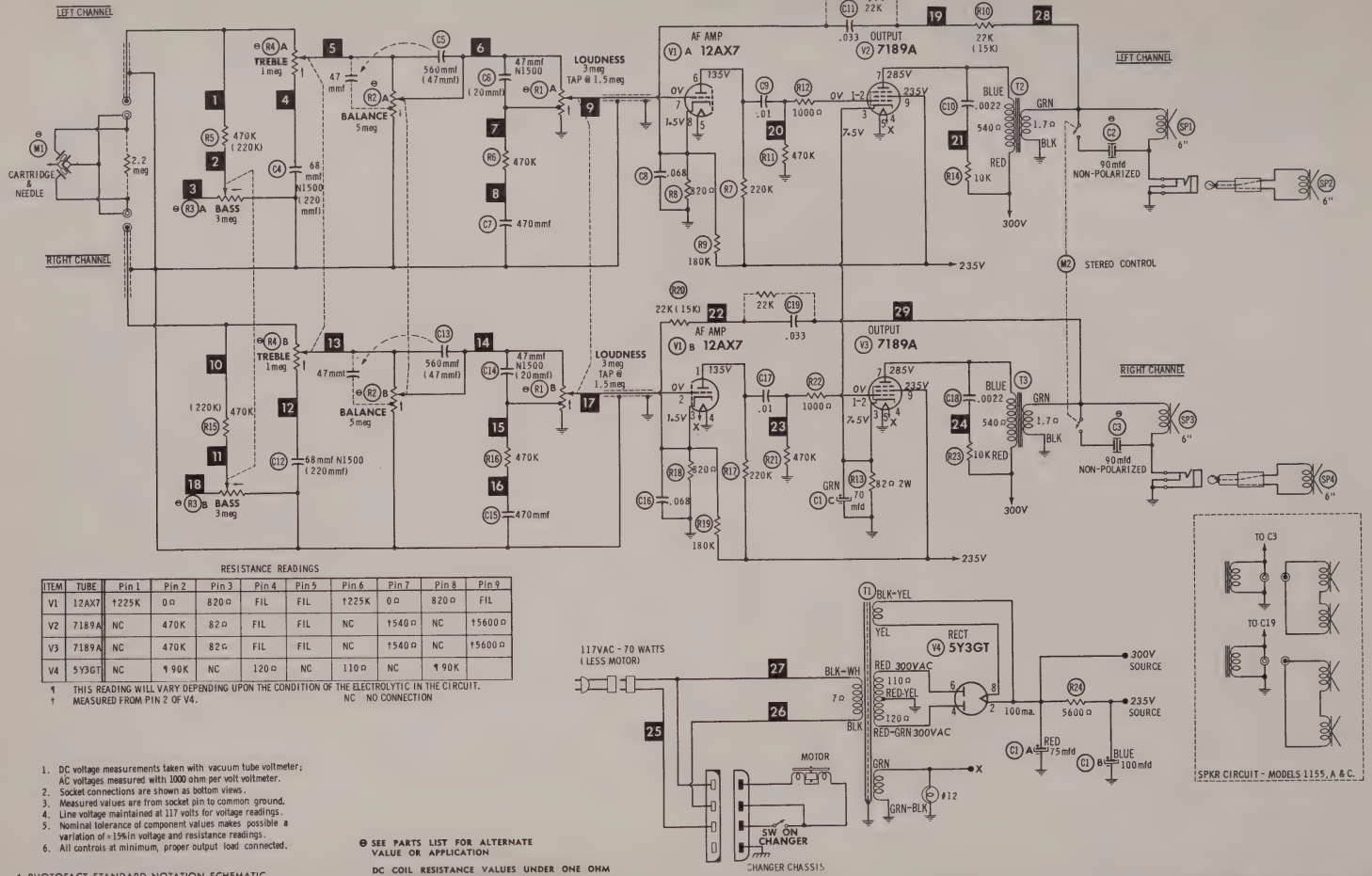
FOR SERVICE INFORMATION ON RECORD CHANGER CH32 (Model RP1170), CH34 (Model RP1155A), CH45 (Model RP1155C)
SEE SIMILAR V-M 1201 – PHOTOFACT SET 436 FOLDER 18 OR RECORD CHANGER MANUAL RC-12

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KT963

SET 555 FOLDER 10



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†225K	0Ω	820Ω	FIL	FIL	†225K	0Ω	820Ω	FIL
V2	7189A	NC	470K	82Ω	FIL	FIL	NC	†540Ω	NC	†5600Ω
V3	7189A	NC	470K	82Ω	FIL	FIL	NC	†540Ω	NC	†5600Ω
V4	5Y3GT	NC	¶ 90K	NC	120Ω	NC	110Ω	NC	¶ 90K	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 2 OF V4. NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

© Howard W. Sams & Co., Inc. 1961

GENERAL ELECTRIC MODELS RP1155A, RP1155C, RP1170A

PARTS LIST AND DESCRIPTIONS

TUBES

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Left Channel AF Amp. - Right Channel AF Amp.	12AX7	V3	Right Channel Output	7189A
V2	Left Channel Output	7189A	V4	Rectifier	5Y3GT

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA G. E. PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	75	400	RS2708						
B	100	400							
C	70	25							
C2	90	25NP	RS2709 ①	PRS7340	BR10015		TCN425		TVANS-1207.1*
C3	90	25NP	RS2709 ①	PRS7340	BR10015		TCN425		TVANS-1207.1*

① Not used in Models 1155A & 1155C.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	68 N1500	(220) †		TCL-68		*		
C5	560	(47) †	DI-560	DD-561	L10T56	CCD-561	B-356	10TS-T56
C6	47 N1500	(20) †		TCL-47		*		
C7	470		DI-470	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C8	.068 50V		P288N-068		CUB4S68	1DP-2-683	GEM-4168	4TM-S68
C9	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C10	.0022		BPD-0022	DD-222	BYA10D22	CCD-222	B-222	5HK-D22
C11	.033 50V		P288N-033	DD-303	CUB6S33	1DP-1-333	GEM-4133	6TM-S33
C12	68 N1500	(220) †		TCL-68		*		
C13	560	(47) †	DI-560	DD-561	L10T56	CCD-561	B-356	10TS-T56
C14	47 N1500	(20) †		TCL-47		*		
C15	470		DI-470	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C16	.068 50V		P288N-068		CUB4S68	1DP-2-683	GEM-4168	4TM-S68
C17	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C18	.0022		BPD-0022	DD-222	BYA10D22	CCD-222	B-222	5HK-D22
C19	.033 50V		P288N-033	DD-303	CUB6S33	1DP-1-333	GEM-4133	6TM-S33

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
† Used in Models 1155A, 1155C and 1170A (Early Versions).

CONTROLS

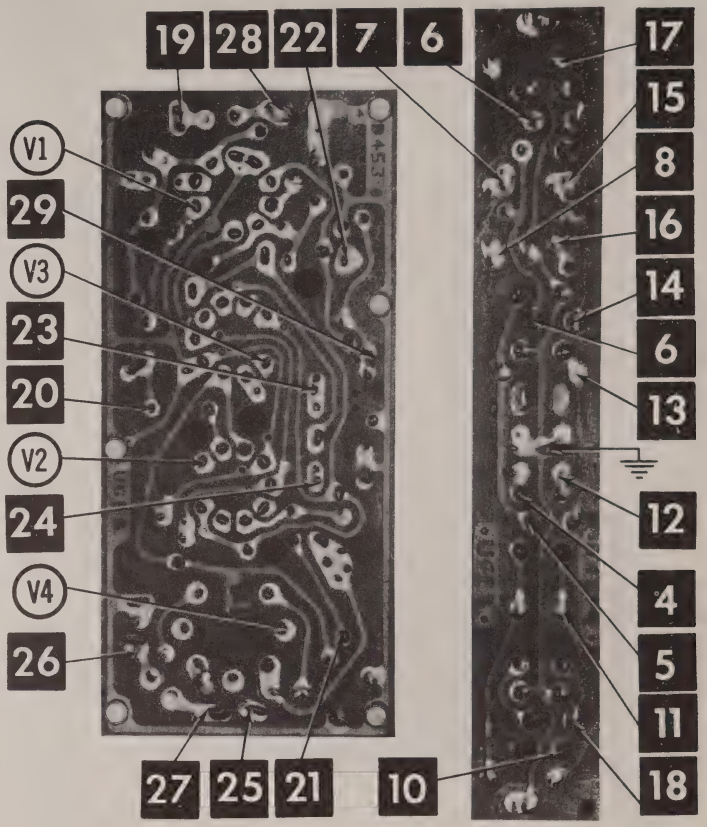
ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA G. E. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	3meg	1/2	RS2713①	BT-180 *			FA36DT155*	Loudness, Right Channel
	1.5meg Tap							
B	3meg	1/2		STR-180 *			RU36DT155*	Loudness, Left Channel
	1.5meg Tap							
C	Shaft			Not Req.			CS3500	
R2A	5meg	1/2	RS2712②					Balance, Right Channel
B	5meg	1/2						Balance, Left Channel
R3A	1meg	1/2	RS2711 ③	B-70	AD47-1meg-Z		FA16A	Treble, Right Channel
B	1meg	1/2		SR-70	Not Req.		RU16A	Treble, Left Channel
C	Shaft			Not Req.	FS-3		CS3500	
R4A	3meg	1/2	RS2710 ④	B-85			FA36A	Bass, Right Channel
B	3meg	1/2		SR-85			RU36A	Bass, Left Channel
C	Shaft			Not Req.			CS3500	

① Model RP1155 uses Part #RS2917.
② Model RP1155 uses Part #RS2916.
③ Model RP1155 uses Part #RS2915.
④ Model RP1155 uses Part #RS2914.
* Do not use Tap #1.

PRINTED BOARD

A Howard W. Sams CIRCUITRACE® Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R5	470K			(220K) *
R6	470K			
R7	220K			
R8	820Ω			
R9	180K			
R10	22K			(15K) *
R11	470K			
R12	1000Ω			
R13	82Ω 2W			
R14	10K			

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R15	470K			(220K) *
R16	470K			
R17	220K			
R18	820Ω			
R19	180K			
R20	22K			(15K) *
R21	470K			
R22	1000Ω			
R23	10K			
R24	5600Ω 3W	PW3-5600	3G-5600	

* Used in Models 1155A, 1155C, and 1170A (Early Versions).

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	G.E. PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V@ .67A	600VCT @ .100A DC	5V@ 2A	RS2715					
	SEC. 3	SEC. 4	SEC. 5						
	6.3V@ 2A								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	G.E. PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	6000Ω	6-8Ω	RS2716	A-3019	A-3337	24S07	S-54X	
T3	6000Ω	6-8Ω	RS2716	A-3019	A-3337	24S07	S-54X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	G.E. PART No.	QUAM PART No.	
SP1	6"	PM	3-4Ω	RB1143	6A1	
SP2	6"	PM	3-4Ω	RB1143	6A1	
SP3	6"	PM	3-4Ω	RB1143	6A1	
SP4	6"	PM	3-4Ω	RB1143	6A1	

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	REPLACEMENT DATA								NOTES
	G.E. PART No.		ASTATIC PART No.		ELECTRO-VOICE PART No.		SONOTONE PART No.		
	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	
M1	RS2701 † RS2616 ‡ RS1598 ♦	Not Req. Not Req.	13TX 13T	Not Req. Not Req.	13 13	Not Req. Not Req.	9T-SD 8TA4-S	N-9T-SD * N-8TA-S*	† (Less holder) Model RP1170A ‡ (Less holder) Models RP1155A, C ♦ Cartridge holder.

MISCELLANEOUS

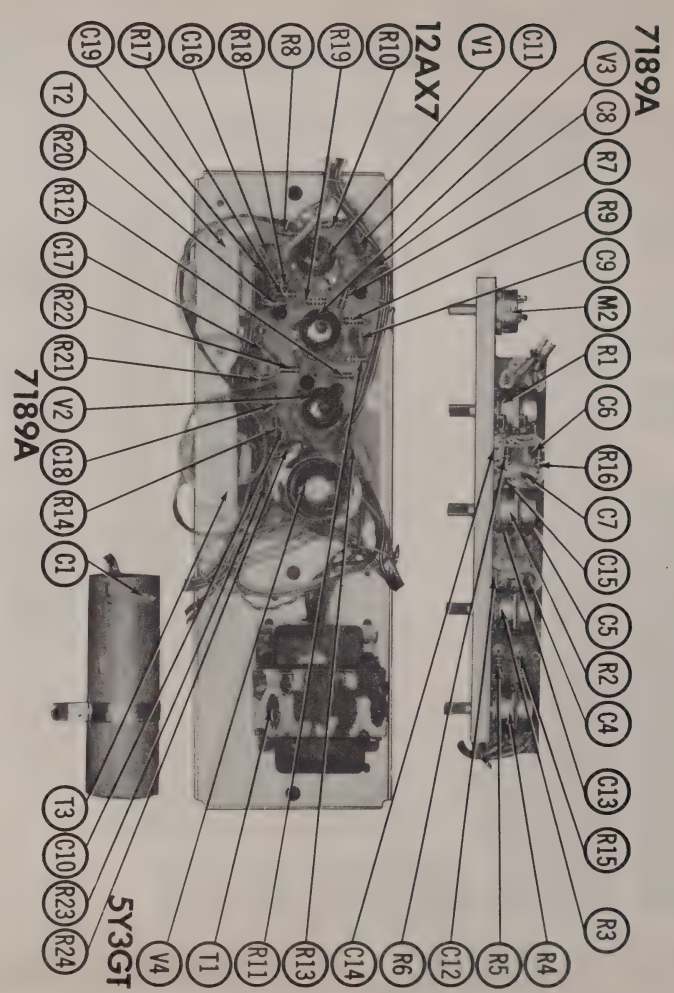
ITEM No.	PART NAME	G.E. PART No.	NOTES
M2	Switch	RS2714	Off-On (Rotary Switch)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	RS2656	Model RP-1170A
Knob	RS2779	Model RP-1155A, C

CHASSIS—TOP VIEW



PHOTOFACT® Folder with CIRCUITRACE*

**MAGNAVOX
MODEL AT-61**

MAGNAVOX
MODEL AT-61

MAGNAVOX
MODEL AT-61

TRADE NAME	Magnavox Model AT-61
MANUFACTURER	The Magnavox Co., 2131 Bueter Road, Fort Wayne 4, Indiana
TYPE SET	Battery Operated Transistorized Portable AM Receiver
POWER SUPPLY	9 Volts DC
RATING	8MA @ 9 Volts DC (No Signal, Min. Volume)
TUNING RANGE—BROADCAST	535 — 1605KC
	20MA @ 9 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1 thru A6.... GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538

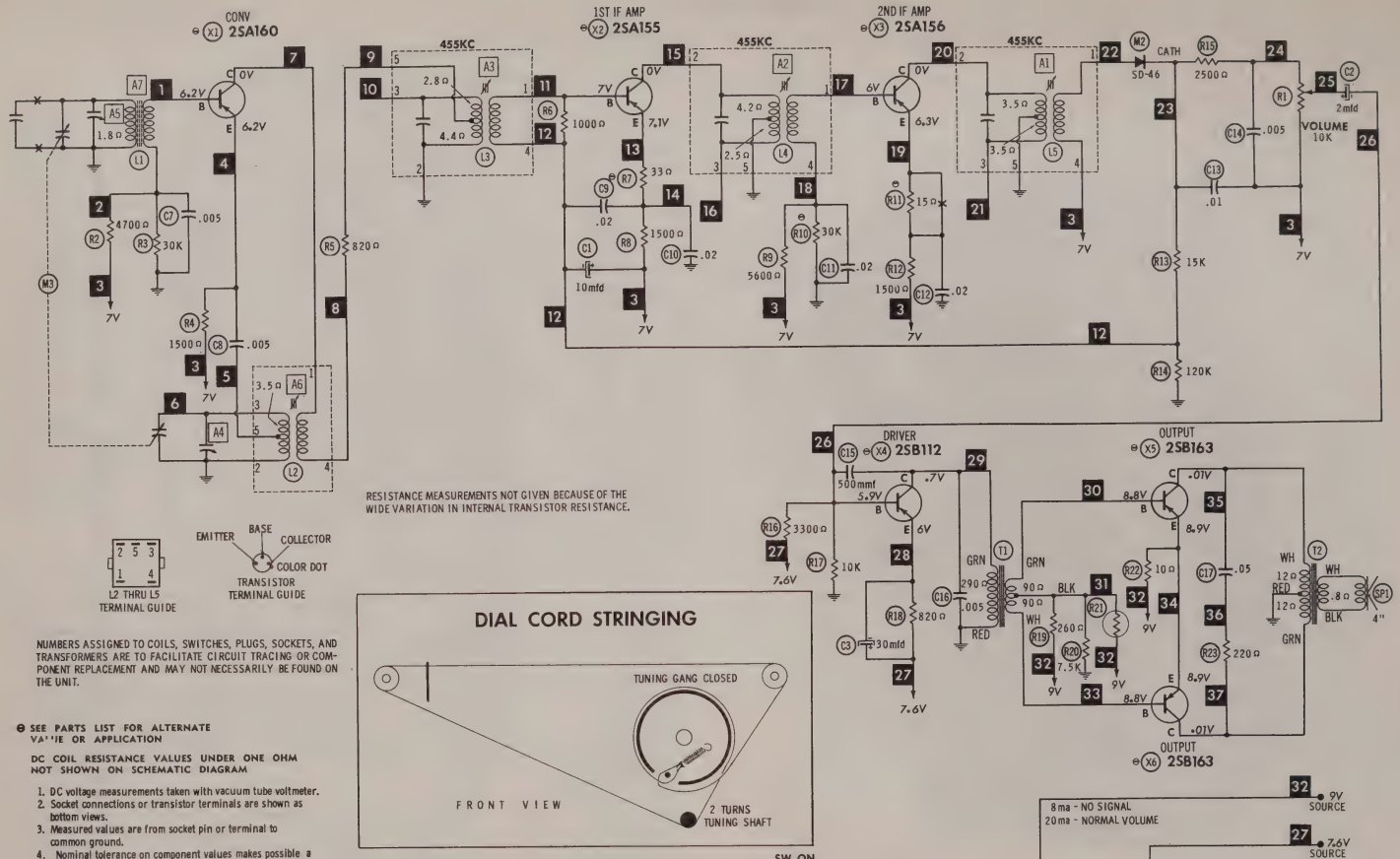
	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455KC (400% Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Adjust for maximum output.
2.	"	1600KC	1600KC	"	A4, A5	"
3.	"	535KC	Tuning gang fully closed.	"	A6, A7	Adjust for maximum output. A7 is adjusted by moving coil along ferrite core. Repeat Steps 2 and 3.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KG830

SET 555 FOLDER 11



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

© Howard W. Sams & Co., Inc. 1961

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA		NOTES
			RCA PART No.	RAYTHEON PART No.	
X1	2SA160	Converter	2N412		PNP
	2SA159*	Converter			PNP
X2	2SA155	1st IF Amplifier	2N410		PNP
	2SA154*	1st IF Amplifier			PNP
	2SA156*	1st IF Amplifier			PNP
X3	2SA156	2nd IF Amplifier	2N410		PNP
	2SA154*	2nd IF Amplifier			PNP
X4	2SB112	Driver	2N406		PNP
X5	2SB163	Output	2N408		PNP
X6	2SB163	Output	2N408		PNP

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	MAGNAVOX PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	10	12	270058-1	PTT53	NLW10-15	MT1-5	TT12X10	MLV10-12	TE-1128
C2	2	12	270051-1	PTT49	NLW2-50	MT1-1	TT12X2	MLV2-12	TE-1121
C3	30	12	270058-2	PTT57	NLW30-15	MT1-14	TT15X30	MLV35-15	TE-1158
C4	100	12	270058-3	PTT60	NLW100-12	MT1-19	TT15X100	MLV100-12	TE-1135
C5	100	12	270058-3	PTT60	NLW100-12	MT1-19	TT15X100	MLV100-12	TE-1135
C6	100	12	270058-3	PTT60	NLW100-12	MT1-19	TT15X100	MLV100-12	TE-1135

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C7	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C8	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C9	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C10	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C11	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C12	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C13	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C15	500		DI-500	DD-501	BYA10T5	CCD-501	B-350	10TS-T50
C16	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C17	.05		BPD-05	DD-503	H-05S5	IDP-2-503	GP150	5HK-S50

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MAGNAVOX PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A B	10K Switch	½	220171-1					Volume Power Off-On

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

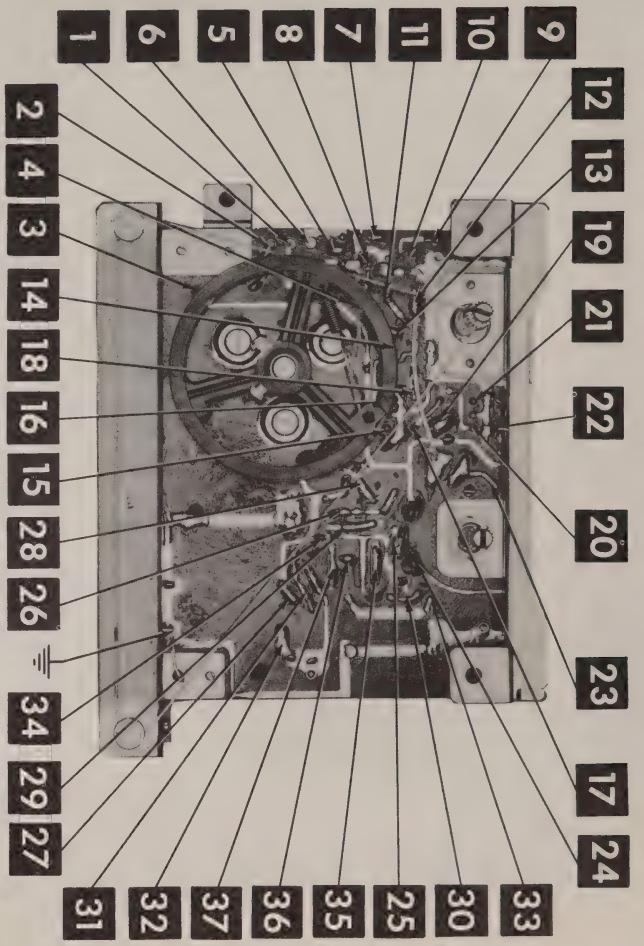
ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.	
R2	4700Ω			
R3	30K			
R4	1500Ω			
R5	820Ω			
R6	1000Ω			Note 1
R7	33Ω			
R8	1500Ω			
R9	5600Ω			
R10	30K			Note 2
R11	15Ω			Note 3
R12	1500Ω			
R13	15K			

ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.	
R14	120K			
R15	2500Ω			
R16	3300Ω			
R17	10K			
R18	820Ω			
R19	260Ω			
R20	7500Ω			
R21	Temp. Comp.			#230132-1
R22	10Ω			
R23	220Ω			
R24	390Ω			
R25	390Ω			

Note 1. Value varies for 0-62Ω, Replace with original value.
Note 2. Value may be 22K, 27K, or 30K. Replace with original value.
Note 3. Value varies from 0-120Ω. Replace with original value.

PRINTED BOARD

A Howard W. Sams CIRCUITRACE* Photo



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		MAGNAVOX PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Loopstick	360876-1					
L2	Osc.	360877-1					
L3	1st IF	360878-1					
L4	2nd IF	360879-1					
L5	3rd IF	360880-1					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MAGNAVOX PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1.1	1	320293-1					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MAGNAVOX PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	350Ω CT	3-4Ω	320294-1					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MAGNAVOX PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	580073-1	4A07	

BATTERIES

ITEM No.	VOLTAGE	MAGNAVOX PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	9V			C6X		2356			

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		MAGNAVOX PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	
M2	SD46	530063-1		1 N60	Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	MAGNAVOX PART No.	NOTES
M3	Tuning Cap.	260161-1	2 Gang

CABINETS & CABINET PARTS

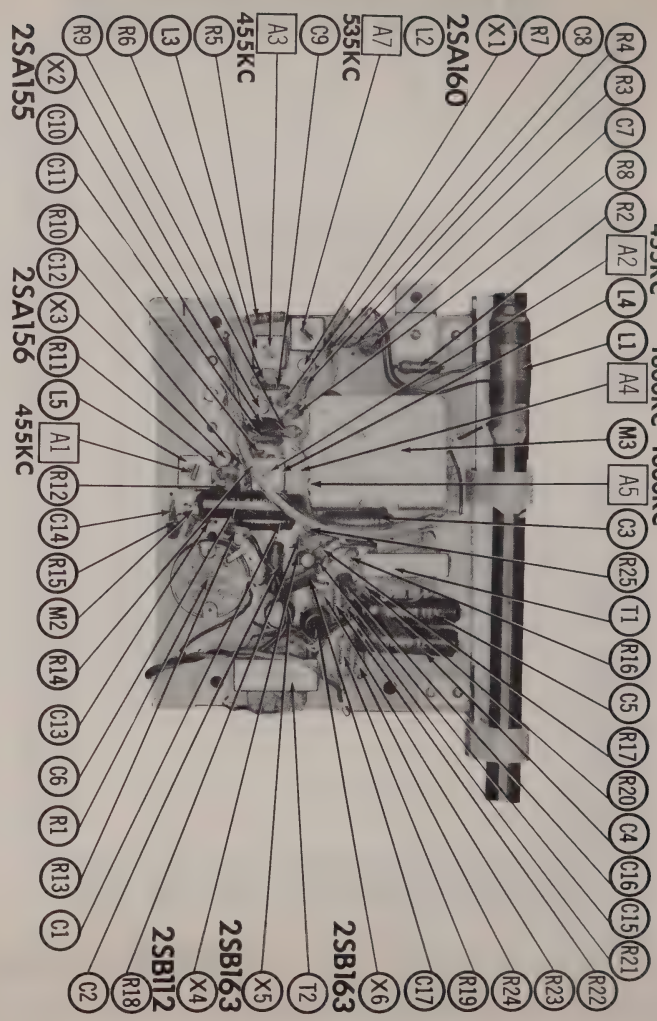
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Scale	140493-1	
Dial Pointer	140491-1	
Knob	140489-1	Tuning
Knob	140490-1	Volume
Cabinet Front	140487-1	Black
Cabinet Back	140488-1	Black
Cabinet Front	140487-2	Light Green
Cabinet Back	140488-2	Light Green
Cabinet Front	140487-3	Sand
Cabinet Back	140488-3	Sand

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

CHASSIS—TOP VIEW



PHOTOFACT® Folder

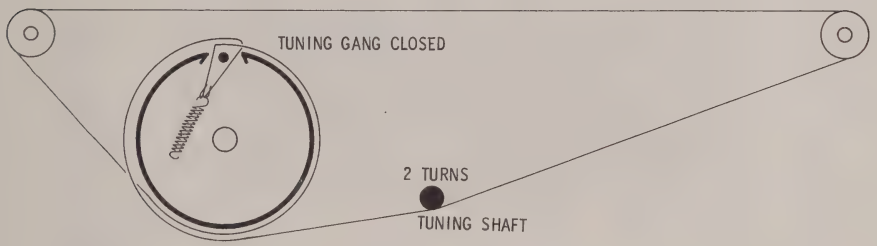
**REALISTIC MODEL
RP-30/50**

REALISTIC MODEL
RP-30/50

REALISTIC MODEL
RP-30/50

TRADE NAME	Realistic Model RP-30/50
SUPPLIER	Radio Shack Corp., 730 Commonwealth Ave., Boston 17, Mass.
TYPE SET	AC Operated 10 Tube FM-AM Communications Receiver
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles RATING 31 Watts, .3 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	30-50MC

DIAL CORD STRINGING



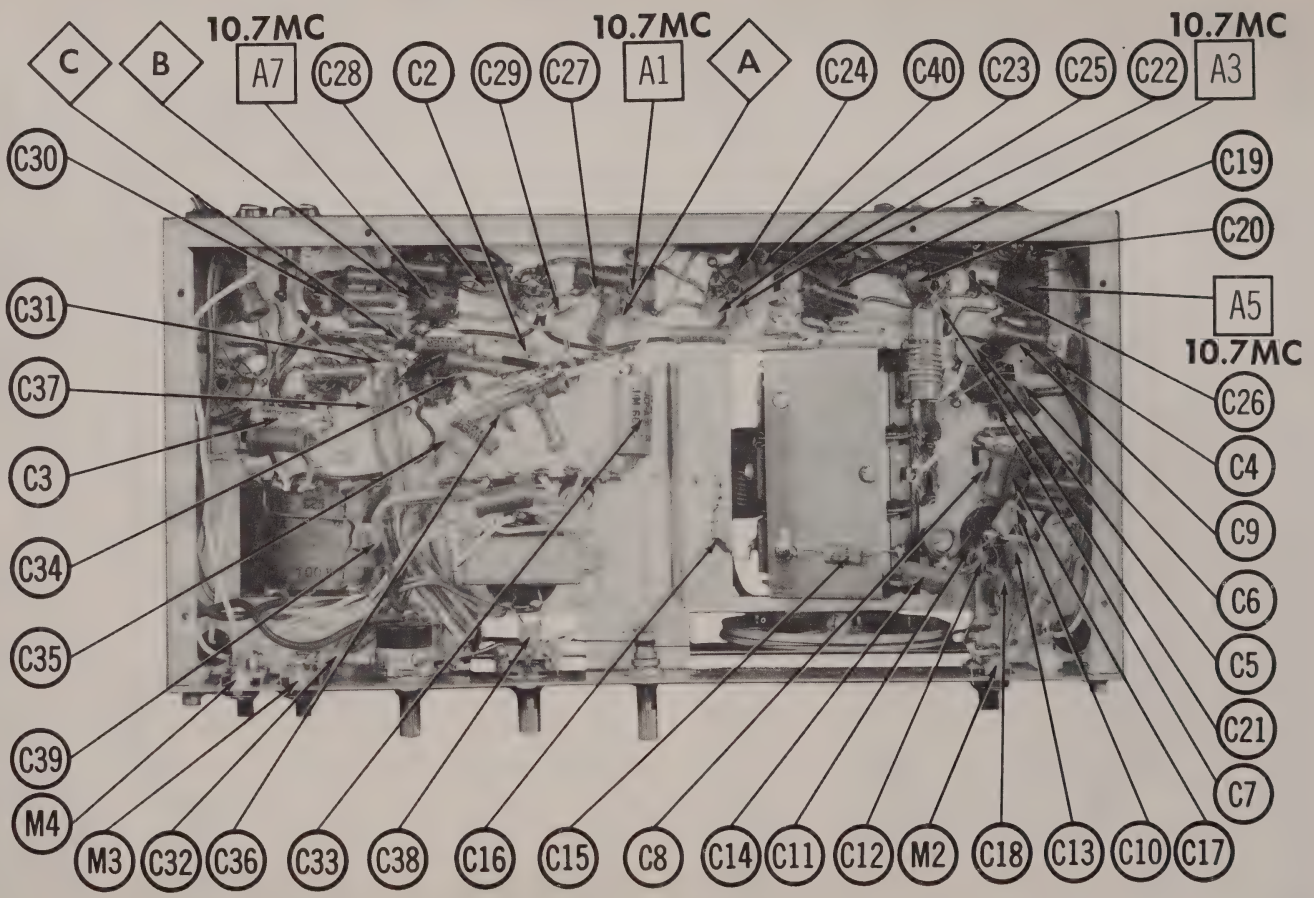
FRONT VIEW

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

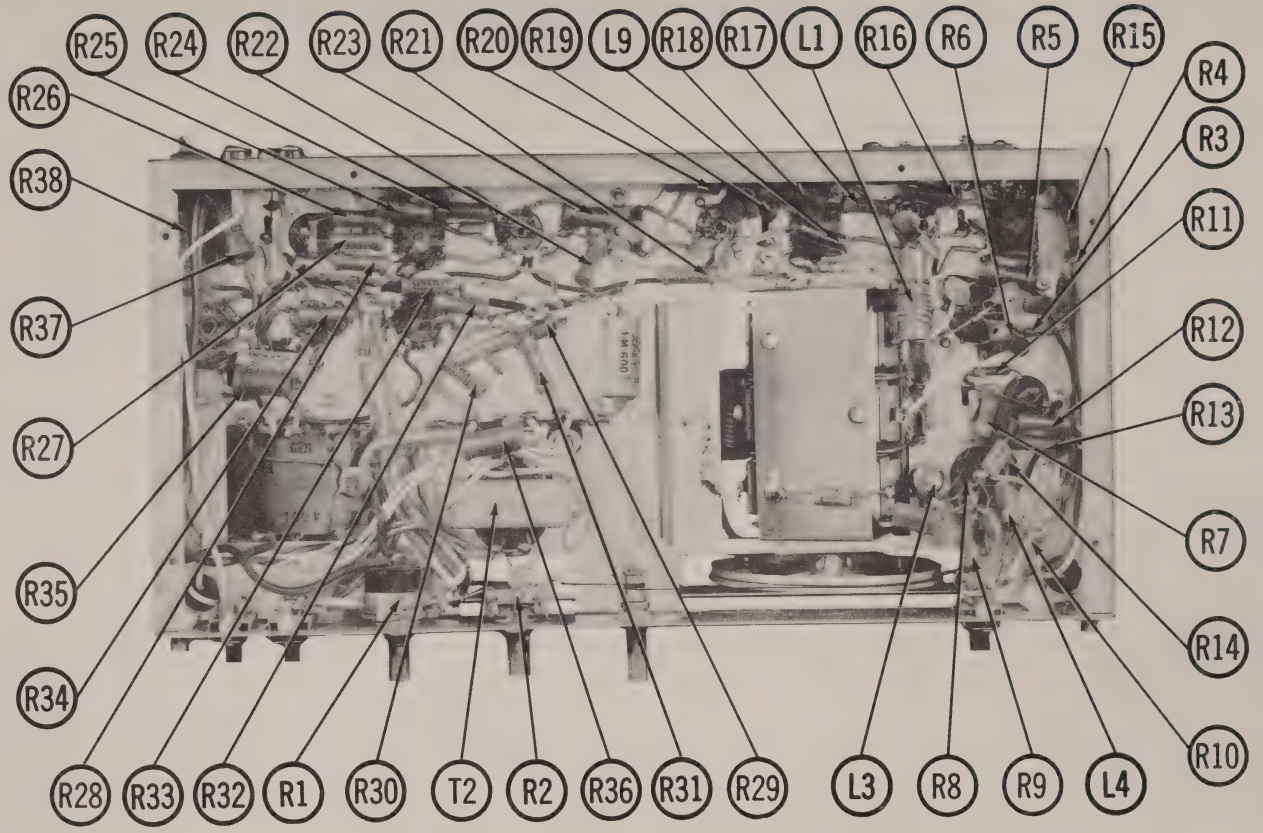
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KG770

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

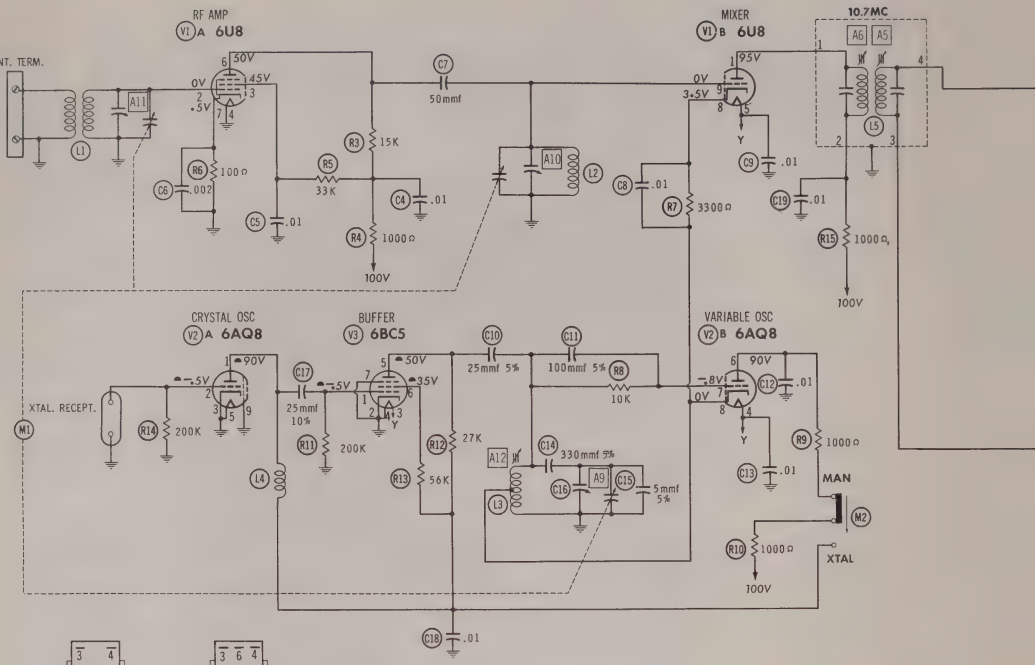
SET 555 FOLDER 12



CHASSIS BOTTOM VIEW-ALIGN., CAPACITOR & MISC. IDENT.



CHASSIS BOTTOM VIEW-RESISTOR & INDUCTOR IDENT.



L5 THRU L7 TERMINAL GUIDE

L8 TERMINAL GUIDE

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6U8	†1600Ω	.1Ω	†34K	FIL	FIL	†16K	100Ω	3300Ω	.1Ω
V2	6AQ8	†▲1600Ω	200K	0Ω	FIL	FIL	†2600Ω	10K	.1Ω	0Ω
V3	6BL5	200K	0Ω	FIL	FIL	†▲28K	†▲37K	0Ω		
V4	¶AU6	700K	0Ω	FIL	FIL	†1600Ω	†70K	68Ω		
V5	6AU6	.1Ω	0Ω	FIL	FIL	†1600Ω	†1600Ω	68Ω		
V6	6AU6	200K	0Ω	FIL	FIL	†22K	†22K	0Ω		
V7	6AL5	200K	100K	FIL	FIL	0Ω	0Ω	100K		
V8	12AX7	†1.1meg	†1.1meg	1meg	FIL	FIL	†220K	0Ω	5000Ω	FIL
V9	¶AQ5	500K	300Ω	FIL	FIL	†270Ω	†0Ω	NC		
V10	6X4	140Ω	0Ω	FIL	FIL	NC	135Ω	¶35K		

ALL MEASUREMENTS MADE IN "MANUAL" POSITION UNLESS OTHERWISE DESIGNATED.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V10. NC NO CONNECTION
▲ MEASURED IN "CRYSTAL" POSITION WITHOUT CRYSTAL.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

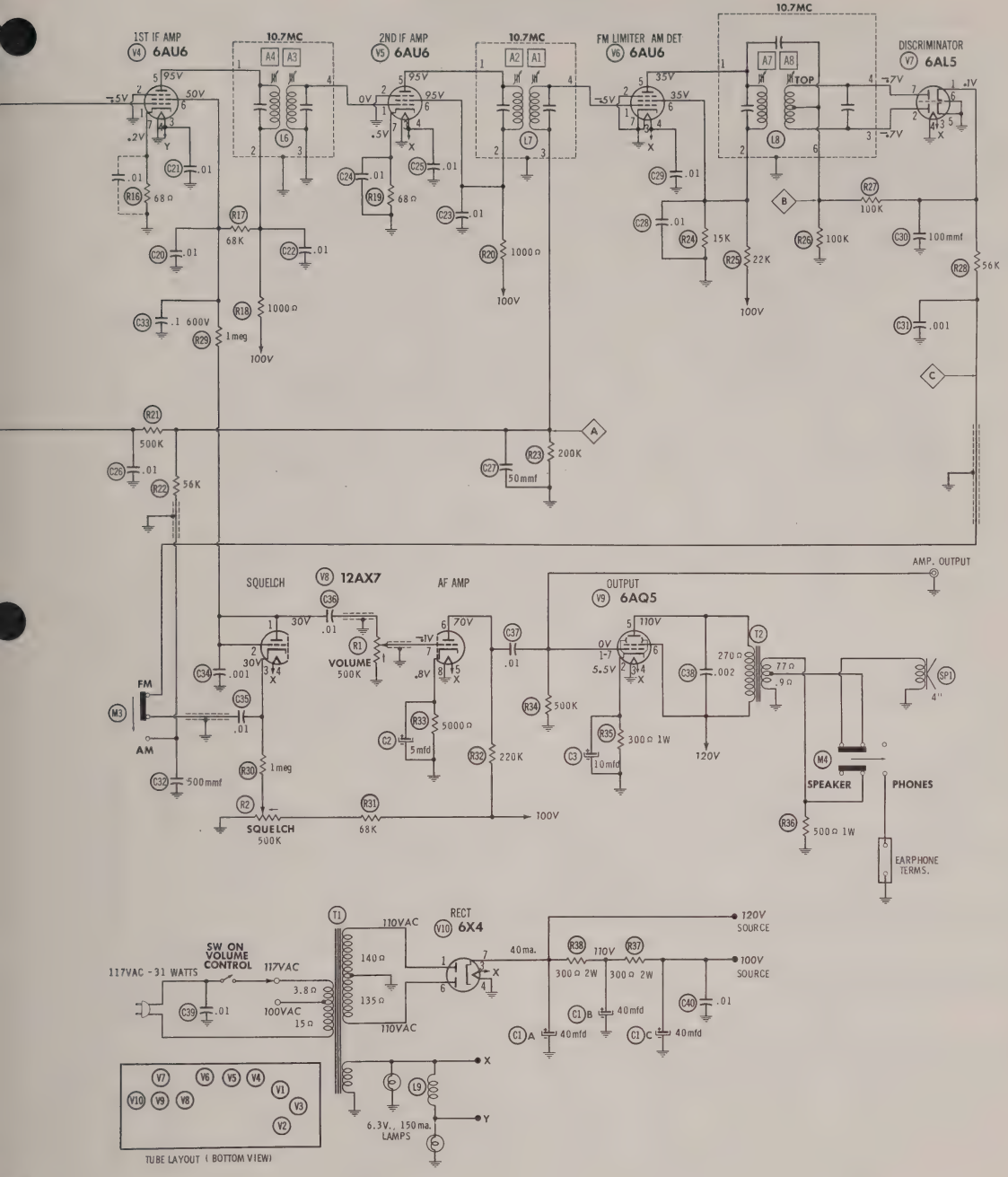
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

©Howard W. Sams & Co., Inc. 1961



REALISTIC MODEL
RP-30/50

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Place all slide switches in up position.
Use only enough generator output to provide a usable indication.
Suggested Alignment Tools: A1 thru A9, A12.. GENERAL CEMENT #8721, 8722
WALSCO #2519
A10, A11... .....GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .001mfd to pin 9 (grid) of Mixer. Low side to chassis.	10.7MC (Unmod.)	Point of non-interference.	DC probe thru 100K to point Ⓐ. Common to chassis.	A1, A2, A3, A4, A5, A6	Adjust for maximum deflection.
2.	"	"	"	DC probe thru 1meg to point Ⓑ. Common to chassis.	A7	"
3.	"	"	"	DC probe to point Ⓒ. Common to chassis.	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
1.	High side thru .001mfd to pin 9 (grid) of Mixer. Low side to chassis.	10.7MC (450KC Swp)	Point of non-interference.	Vert. amp. to point Ⓐ. Low side to chassis.	A1, A2, A3, A4, A5, A6	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
2.	"	"	"	Vert. amp. thru 47K to point Ⓑ. Low side to chassis.	A7	"
3.	"	"	"	Vert. amp. to point Ⓒ. Low side to chassis.	A8	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A7 for maximum amplitude and straightness of cross-over lines.

RF ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	Across antenna terminals with 120Ω in each lead.	50MC (Unmod.)	50MC	DC probe thru 100K to point Ⓐ. Common to chassis.	A9, A10, A11	Adjust for maximum deflection.
5.	"	30MC	30MC	"	A12	"

FIG. 1

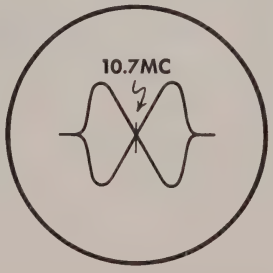


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE
V1	RF Amp. -Mixer	6U8
V2	Var. Osc. -Xtal. Osc.	6AQ8
V3	Buffer	6BC5
V4	1st IF Amplifier	6AU6
V5	2nd IF Amplifier	6AU6
V6	FM Lim. -AM Det.	6AU6
V7	Discriminator	6AL5
V8	Squelch - AF Amp.	12AX7
V9	Output	6AQ5
V10	Rectifier	6X4

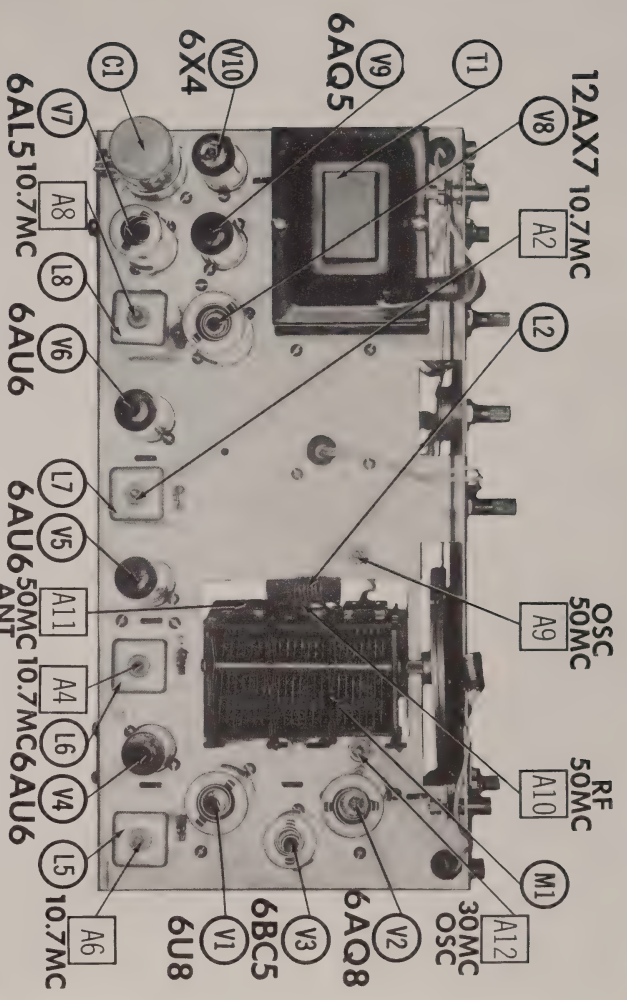
ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA REALISTIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	40	180		AFH3-10	C0090	XC3-38	FP212	TMT-3127	TVL-2428
B	40	180					TC58		TVA-1511
C	40	180							
C2	5	25		PTT77	NLW5-50	MT1-3	TT25X25	MLV5-25	TE-1202
C3	10	50		PTT92	NLW10-50	MT1-6	TC32	MLV10-50	TE-1304

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C5	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C6	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C7	50		SI 50	D6-500	L10Q5	CCD-500	GP450	10TS-Q50
C8	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C9	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C10	25 5%		1469-000025	TCZ-25	22R5Q25	CM-19B-250J	MCE220	MS-425
C11	100 5%		1469-0001	TCZ-100	22R5T1	CM-19B-101J	MCE235	MS-31
C12	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C13	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	330 5%		1469-00033		5R5T33	CM-19B-331J	MCE241	MS-333
C15	5 5%		1469-000005	TCZ4R7	22R5V5	CM-19B-050J	CNO-547	MS-55
C16								
C17	25 10%		1469-000025	TCZ-25	22R5Q25	CM-19B-250K	MCB-220	MS-425
C18	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C19	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C20	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C21	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C22	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C23	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C24	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C25	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C26	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C27	50		SI 50	D6-500	L10Q5	CCD-500	GP450	10TS-Q50
C28	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C29	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C30	100		SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T1
C31	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C32	500		SI 500	D6-501	BYA10T5	CCD-501	GP350	10TS-T50
C33	.1 600V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P10
C34	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C35	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C36	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C37	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C38	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C39	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C40	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	REALISTIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	500K	½		AB-60				Volume
B	Shaft			AK-29				
C	Switch			KR-1				Power Off-On
R2A	500K	½		AB-59				Squelch
B	Shaft			AK-29				

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R3	15K			
R4	1000Ω			
R5	33K			
R6	100Ω			
R7	3300Ω			
R8	10K			
R9	1000Ω			
R10	1000Ω			
R11	200K			
R12	27K			
R13	56K			
R14	200K			
R15	1000Ω			
R16	68Ω			
R17	68Ω			
R18	1000Ω			
R19	68Ω			
R20	1000Ω			

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R21	500K			
R22	56K			
R23	200K			
R24	15K			
R25	22K			
R26	100K			
R27	100K			
R28	56K			
R29	1meg			
R30	1meg			
R31	68K			
R32	220K			
R33	5000Ω			
R34	500K			
R35	300Ω 1W			
R36	500Ω 1W			
R37	300Ω 2W			
R38	300Ω 2W			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		REALISTIC PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Ant.						
L2	RF						
L3	Osc.						
L4	RF Choke(4. 7uh)		SW-631	4609	RTC-8519	T977	
L5	1st IF		FM-254	1463	RTC-8599	T633	
L6	2nd IF		FM-254	1463	RTC-8599	T633	
L7	3rd IF		FM-254	1463	RTC-8599	T633	
L8	Discriminator		FM-253	1464	RTC-8665	T634	
L9	Fil. Choke(1. 5uh)		BC-562	4604	RTC-8616	T856	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	REALISTIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V Ⓖ .3A Tap Ⓖ 100V	220VCT Ⓖ .040A DC	6. 3V Ⓖ 3. 9A						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	REALISTIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	3700Ω	190Ω Tap Ⓖ 6-8Ω						

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	REALISTIC PART No.	QUAM PART No.	
SP1	4"	PM	6-8Ω		4A07Z8	

MISCELLANEOUS

ITEM No.	PART NAME	REALISTIC PART No.	NOTES
M1	Tuning Gang		3 Gang
M2	Switch		Manual-Crystal (Osc.) (Slide Type DPDT)
M3	Switch		FM-AM (Slide Type DPDT)
M4	Switch		Speaker-Phones (Slide Type DPDT)

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder

H. H. SCOTT
MODEL 222B

H. H. SCOTT
MODEL 222B

H. H. SCOTT
MODEL 222B

TRADE NAME	H. H. Scott Model 222B
MANUFACTURER	H. H. Scott, Inc., 111 Powder Mill Road, Maynard, Mass.
TYPE SET	AC Operated 11 Tube Stereo Amplifier
POWER SUPPLY	105 — 125 Volts AC, 50-60 Cycles RATING 130 Watts, 1.3 Amp. @ 117 Volts AC

ADJUSTMENTS

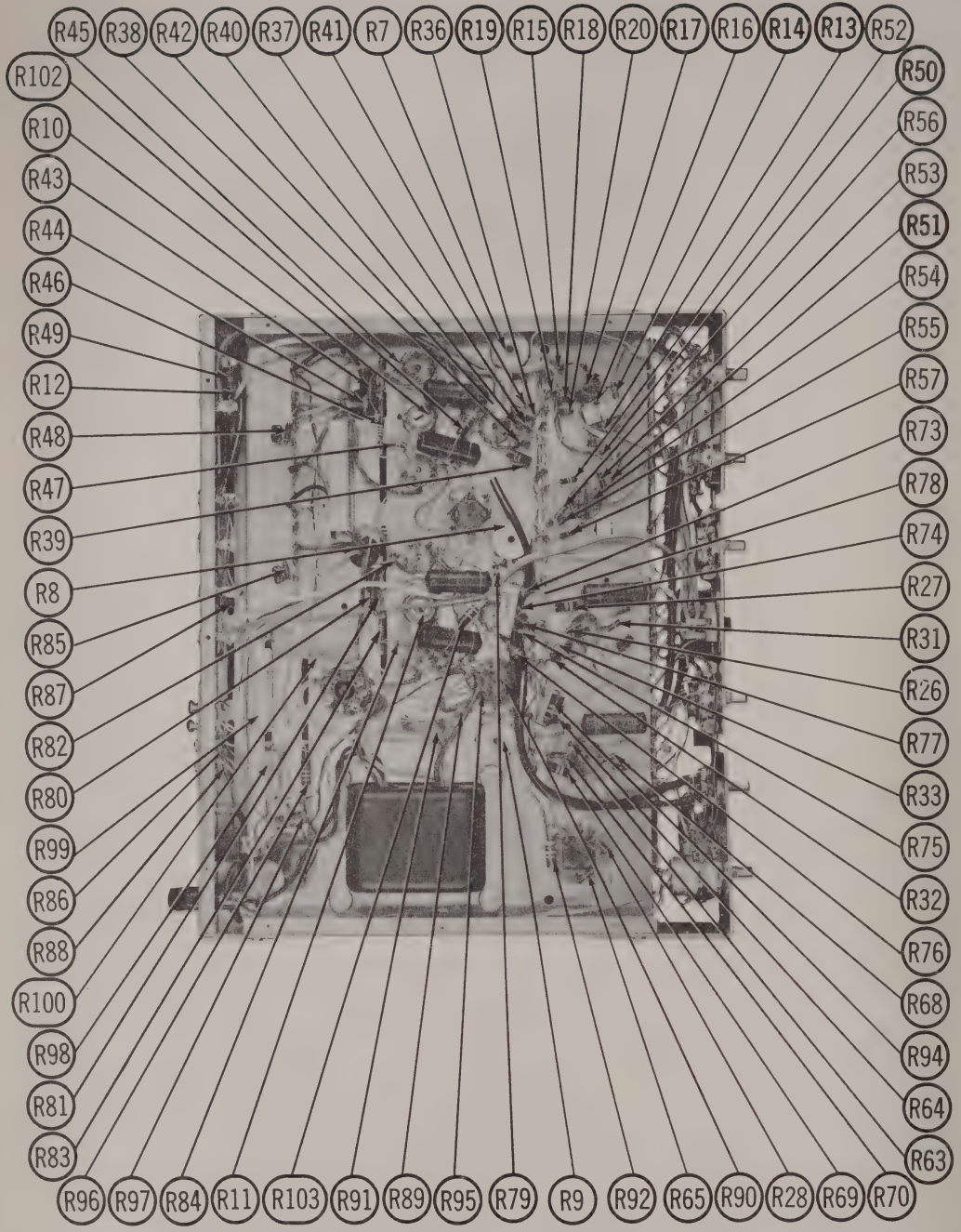
BIAS ADJUSTMENT
Connect DC probe of VTVM to point Ⓐ, Common to chassis. Adjust Bias control for 38.5 Volts on VTVM.
DC BALANCE ADJUSTMENT
Connect a 16Ω 10W resistor across the output terminals of the channel under test. Connect scope across the resistor and turn Horizontal Selector to "LINE". Remove the Phase Inverter tube of the channel under test. Adjust the proper DC Balance control for MINIMUM 120∿ response on scope. Repeat procedure for other channel.
AC BALANCE ADJUSTMENT
AC Balance may be adjusted by using a distortion or wave analyzer. The AC Balance control is adjusted for MINIMUM second harmonic distortion.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

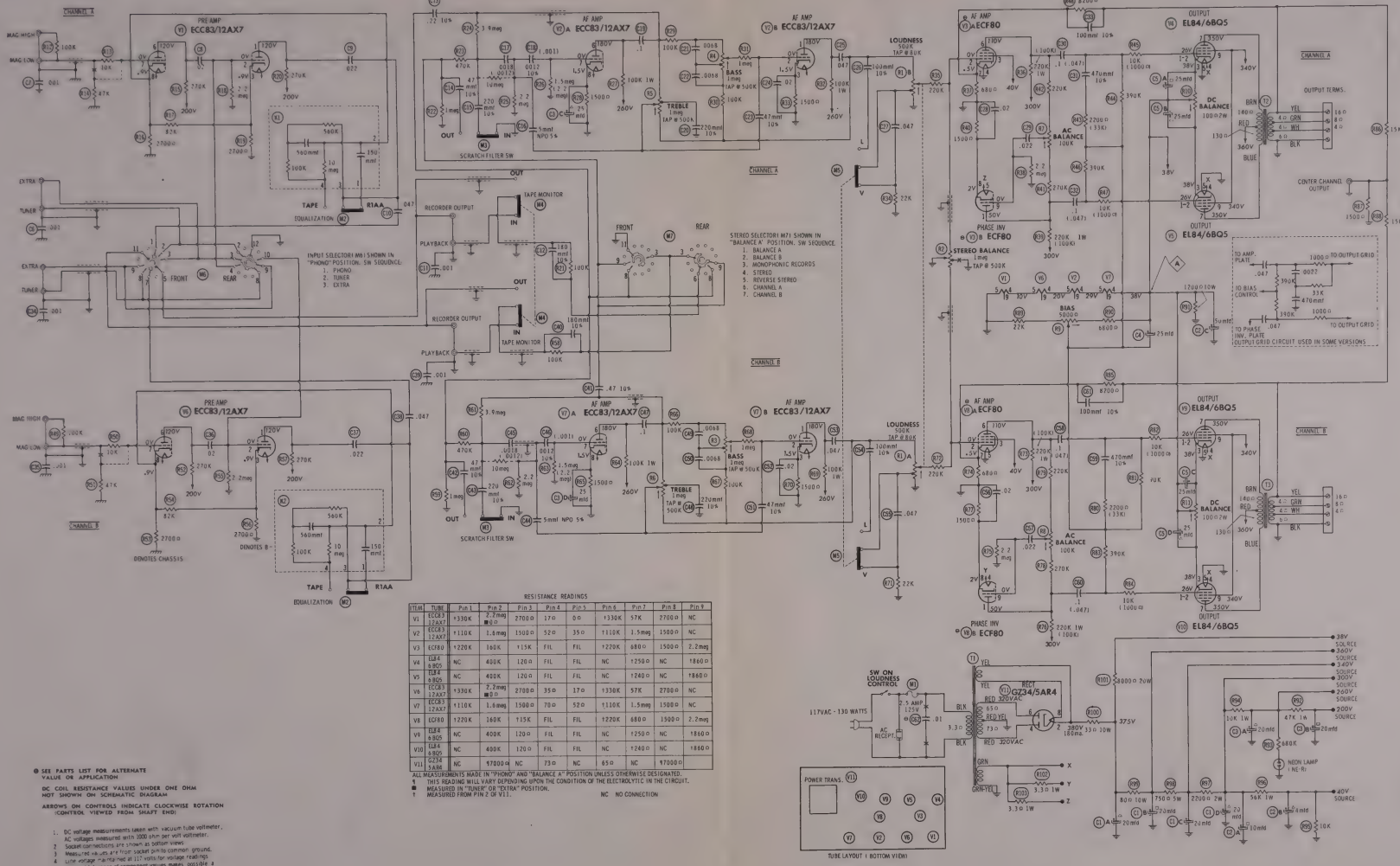
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KV765

SET 555 FOLDER 13



CHASSIS BOTTOM VIEW-RESISTOR IDENT.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC83 12AX7	†330K	2.2meg ■2Ω	270Ω	17Ω	0Ω	†330K	57K	270Ω	NC
V2	ECC83 12AX7	†110K	1.6meg	150Ω	52Ω	35Ω	†110K	1.5meg	150Ω	NC
V3	ECF80	†220K	160K	†15K	FIL	FIL	†220K	680Ω	150Ω	2.2meg
V4	EL84 6BQ5	NC	400K	12Ω	FIL	FIL	NC	†250Ω	NC	†86Ω
V5	EL84 6BQ5	NC	400K	12Ω	FIL	FIL	NC	†240Ω	NC	†86Ω
V6	ECC83 12AX7	†330K	2.2meg ■2Ω	270Ω	35Ω	17Ω	†330K	57K	270Ω	NC
V7	ECC83 12AX7	†110K	1.6meg	150Ω	78Ω	52Ω	†110K	1.5meg	150Ω	NC
V8	ECF80	†220K	160K	†15K	FIL	FIL	†220K	680Ω	150Ω	2.2meg
V9	EL84 6BQ5	NC	400K	12Ω	FIL	FIL	NC	†250Ω	NC	†86Ω
V10	EL84 6BQ5	NC	400K	12Ω	FIL	FIL	NC	†240Ω	NC	†86Ω
V11	GZ34 5AR4	NC	¶7000Ω	NC	73Ω	NC	65Ω	NC	¶7000Ω	

ALL MEASUREMENTS MADE IN "PHONO" AND "BALANCE A" POSITION UNLESS OTHERWISE DESIGNATED.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
■ MEASURED IN "TUNER" OR "EXTRA" POSITION.
† MEASURED FROM PIN 2 OF V11. NC NO CONNECTION

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

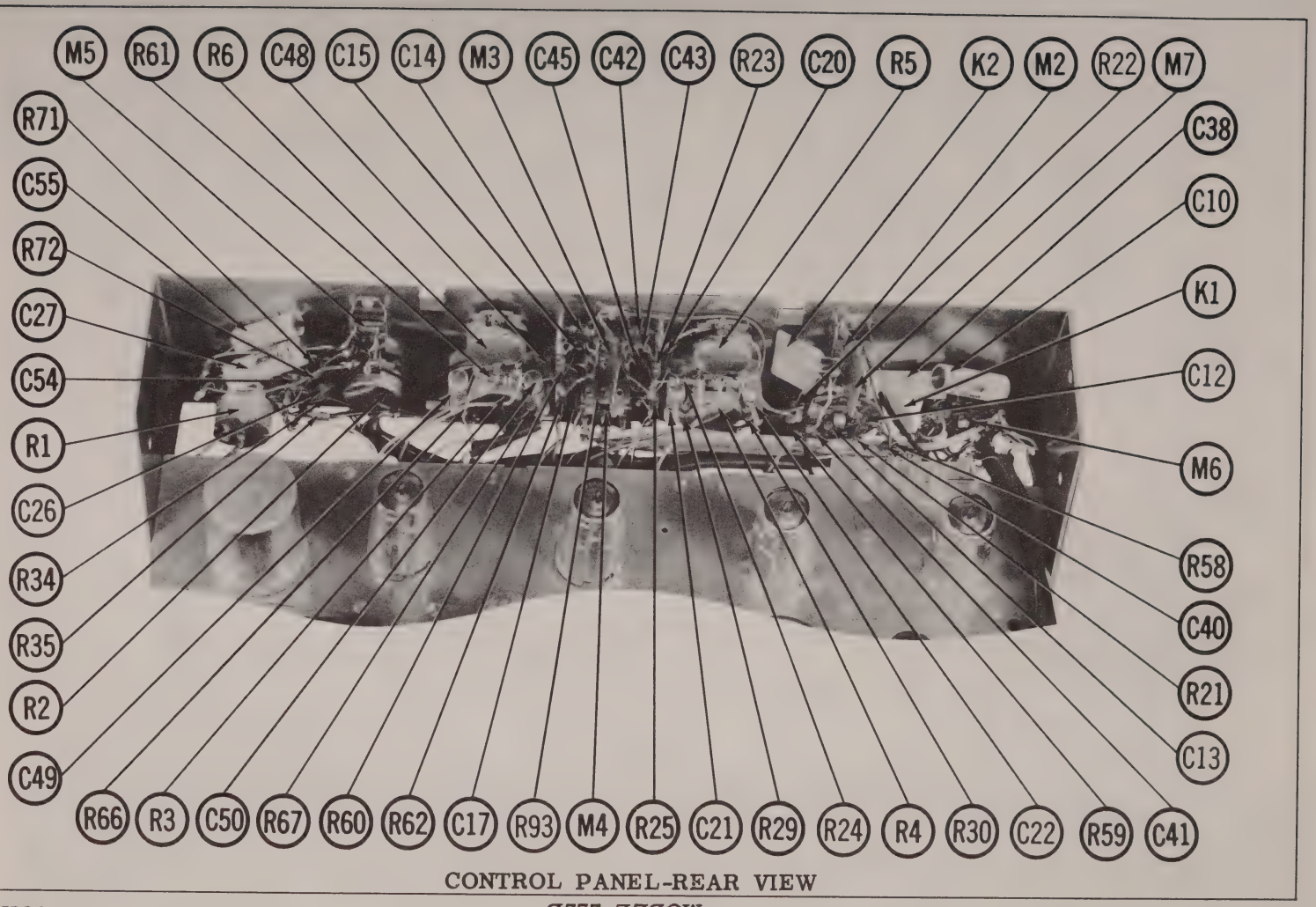
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter.
2. AC voltages measured with 1000 ohm per volt voltmeter.
3. Socket connections are shown as bottom views.
4. Measured values are from socket pins to common ground.
5. Line voltage maintained at 117 volts for voltage readings.
6. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
7. All controls at minimum, proper output load connected.

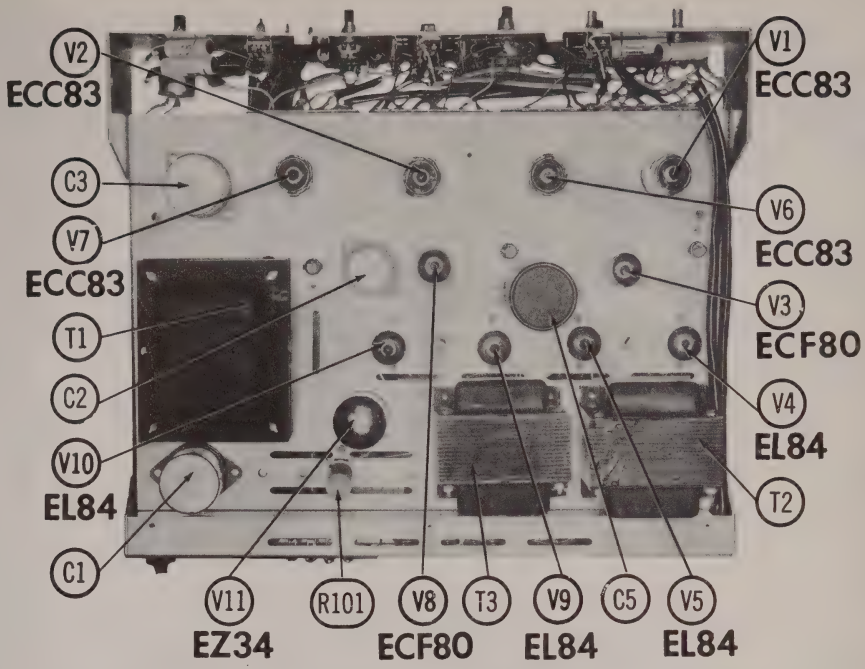
TUBE LAYOUT (BOTTOM VIEW)

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1961

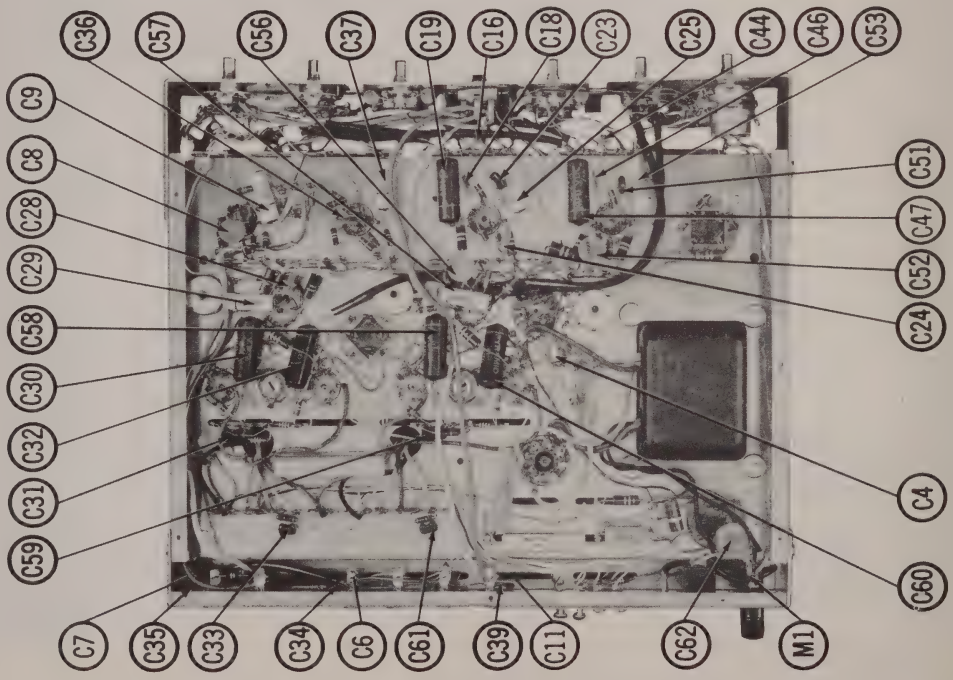
H. H. SCOTT
MODEL 2228



CONTROL PANEL-REAR VIEW



CHASSIS-TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR & MISC. IDENT.

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE
V1	Channel A Preamp.	ECC83/12AX7
V2	Channel A AF Amplifier	ECC83/12AX7
V3	Channel A AF Amplifier-Phase Inverter	ECF80 (6BL8) *
V4	Channel A Output	EL84/6BQ5
V5	Channel A Output	EL84/6BQ5
V6	Channel B Preamp.	ECC83/12AX7
V7	Channel B AF Amplifier	ECC83/12AX7
V8	Channel B AF Amplifier-Phase Inverter	ECF80 (6BL8) *
V9	Channel B Output	EL84/6BQ5
V10	Channel B Output	EL84/6BQ5
V11	Rectifier	GZ34/5AR4

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA H. H. SCOTT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	▲20	450	CEC-4X20-450		C0270	XC4-50	FP376.5	TMQ-4616	TVL-4763
B	■20	450			BR2045		TC75		
C	20	450							
D	▲20	450							
C2A	■10	450	CEC-10-4-50				FP231	TMD-2615	TVL-2610
B	▲4	250					TC49	TD-50-150	TVA-1705
C	50	100							
C3A	▲20	450	CEC-2X20-2X25	AFH4-67	D0520	XC4-54	FP430.97	TMQ-4475	TVL-4724.2
B	■20	450							
C	▲25	25							
D	25	25							
C4	25	25	CET-25-25	PTT82	NLW25-25	MT1-11	TC26	MLV25-25	TE-1207
C5A	■25	25	CEC-4X25-25	AFH4-25	D0190	XC4-78	FP430.97	TMQ-4034	TVL-4414.7
B	▲25	25							
C	25	25							
D	▲25	25							

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C7	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C8	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C9	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C10	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C11	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C12	180 10%		1469-00018	TCZ-180	22R5T18	CM-19B-181K	CNO-318	MS-318
C13	.22mmf 10%							
C14	47 10%		1469-000047	TCZ-47	22R5Q47	CM-19B-470K	CNO-447	MS-447
C15	220 10%		1469-00022	TCZ-220	22R5T22	CM-19B-221K	CNO-322	MS-322
C16	5 5%		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C17	.0018 400V	(.0012) †	P488N-002	D6-182	CUB6D2	6DP-1-202	GEM-6222	6TM-D20
C18	.0012 10%	(.001) †	DI-1200	DD-122	DPMS-DI2	CCD-122	GP212	10TS-D12
C19	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C20	220 10%		1469-00022	TCZ-220	22R5T22	CM-19B-221K	CNO-322	MS-322
C21	.0068 400V		P488N-0068	D6-682	CUB6D68	6DP-1-682	GEM-6268	6TM-D68
C22	.0068 400V		P488N-0068	DD-682	CUB6D68	6DP-1-682	GEM-6268	6TM-D68
C23	47 10%		1469-000047	TCZ-47	22R5Q47	CM-19B-470K	CNO-447	MS-447
C24	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C25	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C26	100 10%		1469-0001	TCZ-100	22R5T1	CM-19B-101	MCB235	MS-31
C27	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C28	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C29	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C30	.1 400V	(.047) †	P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C31	470 10%		1469-00047		5R5T47	CM-19B-471K	MCJ244	MS-347
C32	.1 400V	(.047) †	P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C33	100 10%		1469-0001	TCZ-100	22R5T1	CM-19B-101K	MCB235	MS-31
C34	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C35	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C36	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C37	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C38	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C39	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C40	180 10%		1469-00018	TCZ-180	22R5T18	CM-19B-180K	CNO-318	MS-318
C41	.47mmf 10%		NPO-SI .5	TCZ-R5				
C42	47 10%		1469-000047	TCZ-47	22R5Q47	CM-19B-470K	CNO-447	MS-447
C43	220 10%		1469-00022	TCZ-220	22R5T22	CM-19B-221K	CNO-322	MS-322
C44	5 NPO 5%		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C45	.0018 400V	(.0012) †	P488N-002	D6-182	CUB6D2	6DP-1-202	GEM-6222	6TM-D20
C46	.0012 10%	(.001) †	DI-1200	DD-122	DPMS6DI2	CCD-122	GP212	10TS-D12
C47	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C48	220 10%		1469-00022	TCZ-220	22R5T22	CM-19B-221K	CNO-322	MS-322
C49	.0068 400V		P488N-0068	D6-682	CUB6D68	6DP-1-682	GEM-6268	6TM-D68
C50	.0068 400V		P488N-0068	D6-682	CUB6D68	6DP-1-682	GEM-6268	6TM-D68
C51	47 10%		1469-000047	TCZ-47	22R5Q47	CM-19B-470K	CNO-447	MS-447
C52	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C53	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C54	100 10%		1469-0001	TCZ-100	22R5T1	CM-19B-101K	MCB235	MS-31
C55	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C56	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C57	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C58	.1 400V	(.047) †	P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C59	470 10%		1469-00047		5R5T47	CM-19B-471K	MCJ249	MS-347
C60	.1 400V	(.047) †	P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C61	100 10%		1469-0001	TCZ-100	22R5T1	CM-19B-101K	MCB235	MS-310
C62	.01	Note 1	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

† Alternate Value.
Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA H. H. Scott PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	1/2	RCVD-500KT	BT-66			FA55T15	Loudness, Channel B
	80K Tap		3FSW					
B	500K	1/2		STR-66			RU55T15	Loudness, Channel A
	80K Tap							
C	Shaft			Not Req.			CS3500	
D	Switch			KR-1			US-41	Power Off-On
R2A	1meg	1/2	RCV-1MST-3F	BT-71	A47F5-1meg	Q19-137X	UT-443	Stereo-Balance
	500K Tap							
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	1meg	1/2	RCV-1MT-3F	BT-71	A47F5-1meg	Q19-137X	UT-443	Bass, Channel B
	500K Tap							
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R4A	1meg	1/2	RCV-1MT-3F	BT-71	A47F5-1meg	Q19-137X	UT-443	Bass, Channel A
	500K Tap							
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R5A	1meg	1/2	RCV-1MT-3F	BT-71	A47F5-1meg	Q19-137X	UT-443	Treble, Channel A
	500K Tap							
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R6A	1meg	1/2	RCV-1MT-3F	BT-71	A47F5-1meg	Q19-137X	UT-443	Treble, Channel B
	500K Tap							
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R7A	100K	1/2	RCV-100K-P	BX-40	A47-100K-S	Q11-128	SU-41	AC Balance, Channel A
B	Shaft			Not Req.	FKS-1/4	Not Req.	Not Req.	
R8A	100K	1/2	RCV-100K-P	BX-40	A47-100K-S	Q11-128	SU-41	AC Balance, Channel B
B	Shaft			Not Req.	FKS-1/4	Not Req.	Not Req.	
R9A	5000Ω	1/2	RCV-5K-P	BX-10	A47-5000-S	Q11-114	SU-14	Bias
B	Shaft			Not Req.	FKS-1/4	Not Req.	Not Req.	
R10A	100Ω	2(WW)	RWV-100-P	WN-101	A43-100	W11-084	R100L	DC Balance, Channel A
B	Shaft			Not Req.	FKS-1/4	SK5	Not Req.	
R11A	100Ω	2(WW)	RWV-100-P	WN-101	A43-100	W11-084	R100L	DC Balance, Channel B
B	Shaft			Not Req.	FKS-1/4	SK5	Not Req.	

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R12	100K			
R13	10K			
R14	47K			
R15	270K			
R16	2700Ω			
R17	82K			
R18	2.2meg			
R19	2700Ω			
R20	270K			
R21	100K			
R22	1meg			
R23	470K			
R24	3.9meg			
R25	2.2meg			
R26	1.5meg			(2.2meg) *
R27	100K 1W			
R28	1500Ω			
R29	100K			
R30	100K			
R31	1meg			
R32	100K 1W			
R33	1500Ω			
R34	22K			
R35	220K			
R36	220K 1W			(100K) *
R37	680Ω			
R38	2.2meg			
R39	220K 1W			(100K) *
R40	1500Ω			
R41	270K			
R42	220K			
R43	2200Ω			(33K) *
R44	390K			
R45	10K			(1000Ω)
R46	390K			
R47	10K			(1000Ω) *
R48	8200Ω			
R49	100K			
R50	10K			
R51	47K			
R52	270K			
R53	2700Ω			
R54	82K			
R55	2.2meg			
R56	2700Ω			
R57	270K			

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R58	100K			
R59	1meg			
R60	470K			
R61	3.9meg			
R62	2.2meg			
R63	1.5meg			(2.2meg) *
R64	100K 1W			
R65	1500Ω			
R66	100K			
R67	100K			
R68	1meg			
R69	100K 1W			
R70	1500Ω			
R71	22K			
R72	220K			
R73	220K 1W			(100K) *
R74	680Ω			
R75	2.2meg			
R76	220K 1W			(100K) *
R77	1500Ω			
R78	270K			
R79	220K			
R80	2200Ω			(33K) *
R81	390K			
R82	10K			(1000Ω) *
R83	390K			
R84	10K			(1000Ω) *
R85	8200Ω			
R86	15K			
R87	1500Ω			
R88	15K			
R89	22K			
R90	6800Ω			
R91	1200Ω 10W	PW10-1200	10W-SQ-1200	
R92	47K 1W			
R93	680K			
R94	10K 1W			
R95	10K			
R96	56K 1W			
R97	2200Ω 2W			
R98	750Ω 5W	PW5-750	5W-SQ-750	
R99	80Ω 10W	PW10-80	10W-SQ-80	
R100	33Ω 10W	PW10-33	10W-SQ-33	
R101	8000Ω 20W	PW20-8000	20W-SQ-8000	
R102	3.3Ω 1W			
R103	3.3Ω 1W			

* Alternate Value.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	H. H. Scott PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V@ 1.3A	640VCT @ .180A DC	5V@ 1.9A	TR-12-7					
	SEC. 3	SEC. 4	SEC. 5						
	6.3V@ 3.8A								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	H. H. Scott PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	7000Ω CT	16Ω Tap@ 8Ω, 4Ω	TRA-8-4-1				S-24A	
T3	7000Ω CT	16Ω Tap@ 8Ω, 4Ω	TRA-8-4-1				S-24A	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	H. H. Scott PART No.	REPLACEMENT DATA
K1	Equalization Comp.	150mmf, 560mmf, 100K, 560K, 10meg	PC222E	
K2	Equalization Comp.	150mmf, 560mmf, 100K, 560K, 10meg	PC222E	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			H. H. Scott PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1		2.5A 125V S/B			31302.5 (2.5A 125V S/B)	342001	MDL 2½	HKP

MISCELLANEOUS

ITEM No.	PART NAME	H. H. Scott PART No.	NOTES
M2	Switch		Equalization (Slide Type DPDT)
M3	Switch		Scratch Filter (Slide Type DPDT)
M4	Switch		Tape (Slide Type DPDT)
M5	Switch		Volume-Loudness (Slide Type DPDT)
M6	Switch		Input Selector (Rotary Wafer)
M7	Switch		Stereo Selector (Rotary Wafer)

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

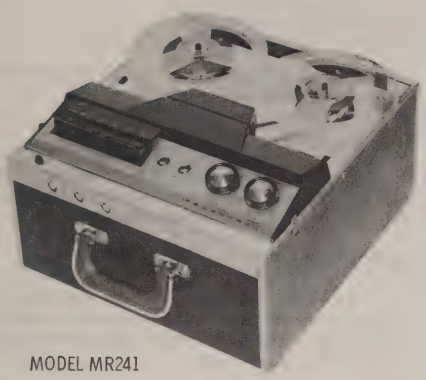
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder with CIRCUITRACE®

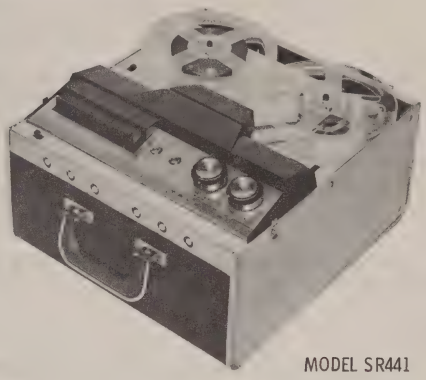
TELECTRO MODELS
MR241, SR441, SR461

TELECTRO MODELS
MR241, SR441, SR461

MODEL SS461



MODEL MR241



MODEL SR441

TELECTRO MODELS
MR241, SR441, SR461

GENERAL INFORMATION

Telectro Models SS461 and SR441 are three-speed recorders which can record and play back monaural and stereophonic recordings. Telectro Model MR241 is a three-speed recorder and can record and play back monaural recordings. The major differences in these recorders are in the amplifiers.

Recordings can be made from a microphone, radio, phonograph, tuner, or TV set. Speaker jacks are provided for connecting external speakers.

These models have three tape speeds, 7 1/2, 3 3/4, and 1 7/8 ips. A two-position equalization switch for 7 1/2, 3 3/4 and 1 7/8 ips is provided. Using both tracks, recording times are as follows:

Tape Length	7 1/2 ips	3 3/4 ips	1 7/8 ips
1200 ft.	1 hour	2 hours	4 hours
1800 ft.	1 1/2 hours	3 hours	6 hours
2400 ft.	2 hours	4 hours	8 hours

This recorder operates on 60 cycles, 105-120 volts AC only.

Manufactured By:

Telectrosonic Corporation
35 - 18 37th Street
Long Island City 1, New York

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

CQ471

FUNCTION OF CONTROLS

Power On-Off, Volume Control #1

Turns power on and off for entire unit. Regulates volume on monaural playback. Determines recording level. Controls Channel 1 record level ,and playback volume on stereo playback.

Volume Control #2

Controls the record level and playback volume for Channel 2 in stereo position.

Tone Control #1

Controls bass and treble response on monaural playback; Channel 1 tone on stereo playback. Tone control does not function during record.

Tone Control #2

Functions on Channel 2 stereo playback only.

Rotary Speed Selector

Selects desired tape speed: 7 1/2, 3 3/4, or 1 7/8 ips. This control cannot be turned unless the pushbuttons are in the Stop position.

Equalization Switch

In up position, it equalizes response for 7 1/2 ips speed and down position for 3 3/4 and 1 7/8 ips speeds.

FUNCTIONS OF PUSHBUTTONS

In order for pushbuttons to work properly, they should be depressed firmly. All buttons lock into position when depressed except Stop and Pause. The recorder can be changed from one function to another immediately except from Wind or Rewind to Play; in this case, the Stop button must first be depressed.

Stop

Applies brake to both spindles and returns all pushbuttons to neutral.

Record

Moves play-record switch into record position.

Rewind

Returns tape rapidly to supply reel. Moves wind-rewind pulley, increasing tension on rewind belt which turns supply spindle.

Wind

Moves tape rapidly in Play and record direction. Moves wind-rewind pulley, increasing tension on wind-rewind belt which turns take-up spindle.

Play

Moves tape for playback (or recording, if Record button is depressed simultaneously). Brings pressure roller and pressure pads into position against erase and record heads.

Pause

Stops tape by removing pressure roller from capstan and applying brake to spindles. Record or playback settings are not disturbed.

Speaker Switch

Two separate switches are provided for each channel wing speaker. The switches connect or disconnect either the left or right wing speaker for monitoring while recording.

Recording Level Indicators

Two VU meters are provided on Model SS461 to set the correct recording level while recording. Models SR441 and MR241 have neon level indicators.

Stereo: Simul-Track Switch (Model SS461 only)

Two-position switch selects Stereo operation or Simul-Track operation. The Simul-Track position allows recording on one channel while listening to a prerecorded selection on another track. Do not operate Stereo; Simul-Track switch with record switch depressed.

INPUT AND OUTPUT JACKS

Speaker Jacks

Speaker jacks are provided for each channel for connecting the wing speakers. These jacks can also be used to connect external speakers, if desired.

Microphone, Low Level

Two separate jacks are provided for recording monaurally from one microphone or recording stereophonically from a pair of microphones.

Radio-Phono 1 and 2

Used for recording monaurally or stereophonically from phono, radio, TV set, or tuner.

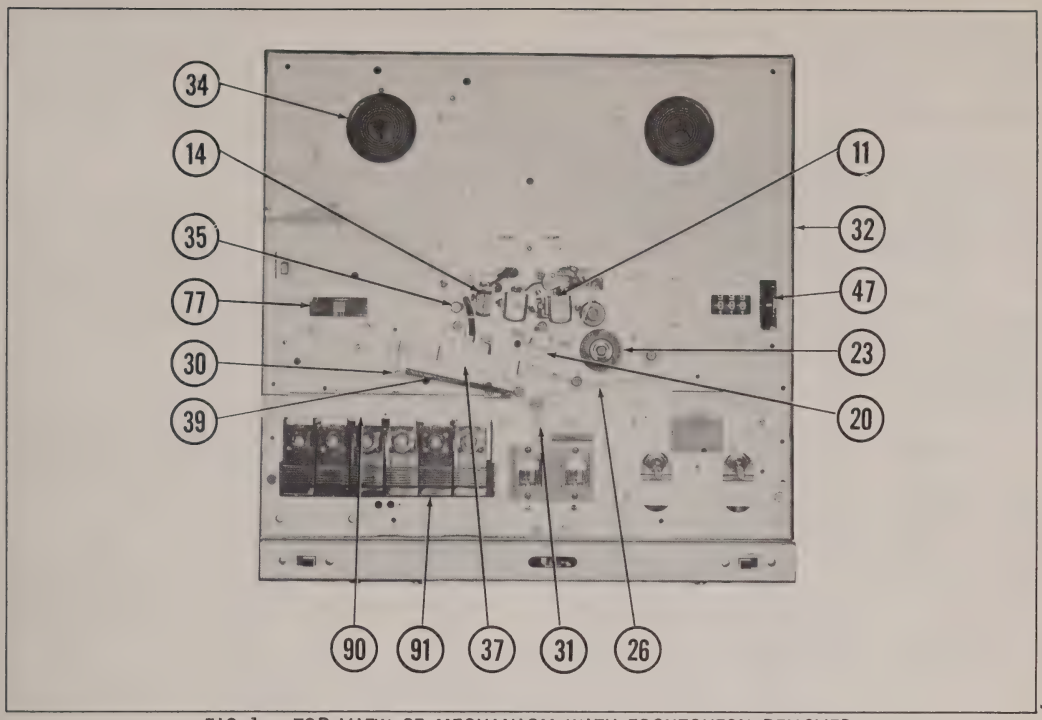


FIG. 1 TOP VIEW OF MECHANISM WITH ESCUTCHEON REMOVED

OPERATING INSTRUCTIONS

Threading the Tape

Place reel of tape on left spindle; empty reel on right spindle. Thread tape in slot with shiny side toward front of recorder. Insert loose end into one of the slots on the empty reel and rotate reel counter-clockwise to take up slack in the tape.

To Make a Recording

Plug the microphone into the Mic 1 jack. Turn the recorder on by rotating the On-Off Vol. control #1 until a click is heard. Allow sufficient time for the tubes to warm up. Turn the Rotary Speed Selector switch to the desired speed. Turn the Equalization switch to the proper setting for the speed used. On Models SS461 and SR441, select the proper head setting pushing down on the Head Elevator Lever; record in 1/4 track only. Switch Speaker On-Off to the Off position. Depress Record button and adjust Volume control #1 until the recording level indicator needle comes up to but does not enter the red portion of the scale. Hold the Record button down and at the same time depress the play button until both buttons lock in the down position. If buttons will not stay down or a buzzing sound is heard, tape is not properly threaded; rethread the tape. Depress the stop button at the end of a recording; at the end of tape, the recorder will stop automatically. When recording voice, hold microphone 6 inches from the mouth. When recording from radio or TV, place the microphone two or three feet in front of the loudspeaker. To record stereophonically, microphone is plugged into Mic 2 jack and same setup procedure used.

It is possible to record direct from a radio, phonograph, tuner or TV set by connecting a patch cord between the High Level inputs and the program source.

To stop the recorder briefly, hold the Pause button down. The recorder will continue to record when the Pause button is released.

To monitor while recording, switch the Speaker switch to On position. Avoid feedback while recording with microphones by keeping the microphones as far away as possible and behind the speakers.

4-Track Monaural Recording (Model SS461 only)

To make 4-track monaural recordings, place the Stereo-Simul-Track switch in the Simul-Track position. Connect a microphone or other program source to the Mic 2 jack. Use same recording set up as before. At the end of the tape, reverse the reels and record the other side of tape. When this side is completed, reverse reels again and change microphone to Mic 1 input. Record both sides using Channel 1 record circuit.

4-Track Monaural Playback (Models SS461 & SR441)

To play back 4-track monaural recordings, use same procedure as when making a recording. Thread

the tape and depress the Play button. When playing back Channel #1 monaurally, the channel #2 speaker should be in the Off position. Use reverse procedure to play back Channel #1 tracks.

To Wind or Rewind Tape

Depress the Wind or Rewind button to move the tape in the desired direction. Depress the Stop button to stop the tape. The recorder will stop automatically at the end of the reel.

To Play Stereophonic Tapes (Models SS461, SR441 only)

Set up recorder the same as for monaural playback. Select the proper head setting; 1/4 track or 1/2 track tape position. Set Speaker On-Off #1 and Speaker On-Off #2 to the On position. Press the Play pushbutton and adjust the Volume and Tone controls to the desired levels.

To Edit and Splice Tape

Since one track cannot be spliced without affecting the other, recordings to be edited should be limited to one-track tapes. Unwanted portions of the recording can be cut out and the desired selections joined together. Cut the tape at a slight diagonal and join the ends together with splicing tape on the glossy side. Excess splicing tape should be trimmed from the tape.

NOTE: Use splicing tape only. Do not use cellophane tape.

Using the Recorder as a Public Address System

Plug a microphone into the Mic #1 jack (or Mic #2 jack or both). Switch the corresponding speaker on and depress the record button. Adjust the volume to the desired level. Keep the microphone behind the speaker to eliminate feedback.

High and Low Level Mixing

Mixing of High-and Low-level program material can be accomplished in either or both channels. Plug the microphone into the Mic #1 jack and a high-level signal source (crystal or ceramic cartridge) into the Radio-Phono #1 jack. It is desirable that the high level source have a means of controlling its level so that the mixing level can be adjusted.

Preamplifier Outputs

The Radio-Phono inputs can be used as preamplifier outputs to play tapes through an external amplifier. Use patch cords to connect between the Radio-Phono jacks and the high level inputs of external amplifier.

Head Elevator (Models SS461, SR441 only)

Push left lever of head elevator down for four-track recordings, and right lever down for two-track recordings.

DISASSEMBLY

To Remove Recorder from Case

1. Remove Volume and tone control knobs. Remove two screws holding front escutcheon and remove escutcheon. Remove Stereo-Simul-track knob (Model SS461) and remove two screws and remove escutcheon from input and output jacks.
2. Remove four screws from bottom of case and two screws from the sides.
3. Pull the recorder up and out of the case.
4. Reverse foregoing procedure to reassemble.

ADJUSTMENTS

To Align Record-Playback Head

1. Place the head in the up position by pushing the left tab of the Head Elevator down.
2. Loosen nuts at the side of head and raise or lower head, aligning the upper gap evenly with the top edge of the tape. Tighten the mounting nuts.
3. Adjust for maximum output by turning alignment screw while playing a prerecorded alignment tape .
4. Repeat steps 2 and 3.

To Align Erase Head

Loosen mounting nuts and set the Erase Head so that the top of head gap is even with the top of tape. Tighten mounting nuts.

Brake Adjustment

1. Check to see that the Brake Arm (71) is perfectly parallel in respect to the Speed Selector mounting bracket.
2. To adjust the Brake Arm (71), loosen either the right - or left-hand screw holding the brake cord to the motor mounting bracket. Taking up slack or releasing tension on the brake cord moves the brake arm into the proper position.

NOTE: If brake tension is adjusted, the Automatic Stop switch adjustment must be checked.

Automatic Stop Switch

When in rest position, the blades of the automatic stop switch should be 1/8" apart. Adjustment of the Automatic Stop switch can be made by loosening the mounting nut or bending the blades of the switch to the proper position.

Pressure Roller Adjustment

1. With no power applied, depress the Play button.

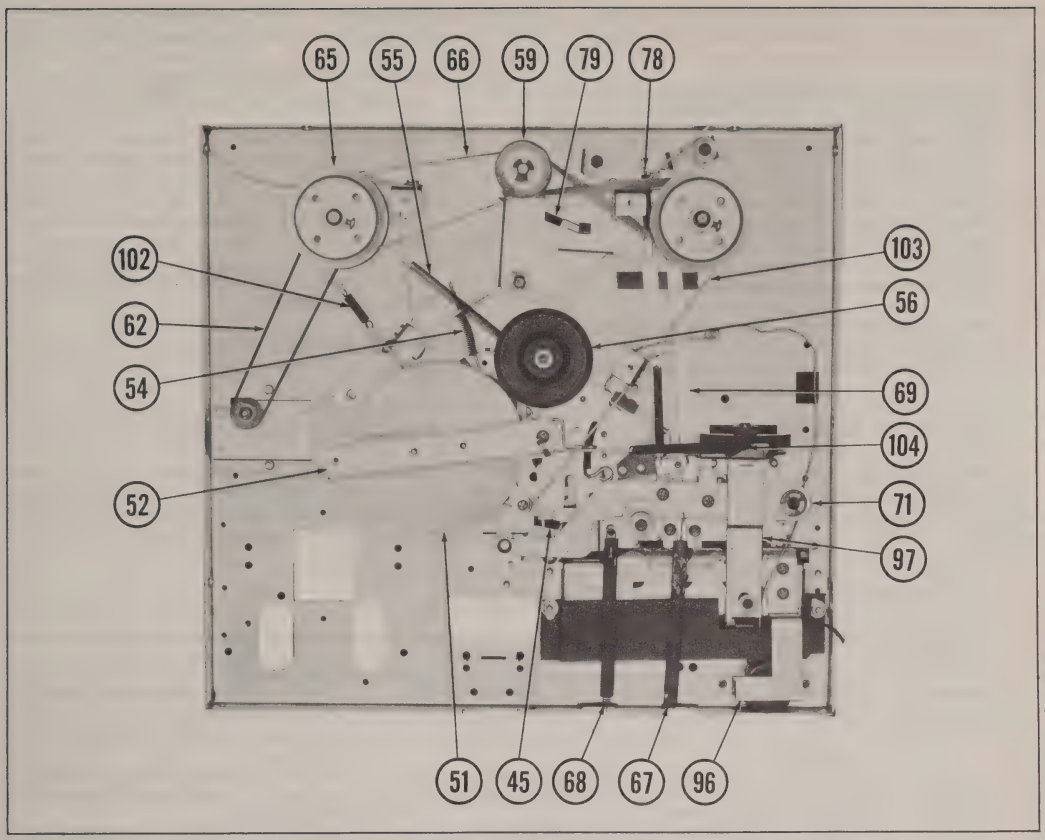


FIG.2 BOTTOM VIEW OF MECHANISM

2. Using a pull scale connected to the pressure roller, determine the amount of pressure required to pull the roller away from the capstan shaft. Pressure should be from 22 to 24 ounces.

3. Adjust the pressure roller pressure by bending the tab on the Play Lever and Cam Assembly until the correct pressure is obtained.

BIAS FREQUENCY ADJUSTMENT

1. Connect a 10Ω resistor in series with the ground lead of the erase head.

2. Connect the vertical amplifier of the scope across the resistor.

3. Connect an accurately calibrated signal generator adjusted to 65KC to the horizontal input terminals of the scope.

4. Depress the Record button and adjust A1 (MR241), A4 (SR441), A7 (SS461) so that a Lissajou pattern on the scope indicates a 1:1 ratio (65KC).

BIAS ADJUSTMENT

1. Connect a 100Ω resistor in series with the ground lead of the Record-Play head (Track 1 on stereo models).

2. Connect an AC VTVM across the resistor.

3. Depress Record button and adjust A2 (MR241), A5 (SR441), A9 (SS461) for .023-.024V across the resistor.

4. On Model SS461 only, repeat steps 1, 2 and 3 for second track adjusting A10. Recheck track 1.

NOTE: Bias may be adjusted by connecting an AC VTVM across the Record-Play head and adjusting as in steps 3 and 4 for 23-25V at 65KC.

ERASE ADJUSTMENT-MODEL SS461 ONLY

1. Connect a 10Ω resistor in series with the ground lead of the erase head.

2. Place Stereo-Simul-Track switch in Stereo.

3. Connect an AC VTVM across the resistor.

4. Adjust A8 for .12-.13V (12-13MA).

NOTE: Erase may be adjusted by connecting an AC VTVM across erase head and adjusting A8 for 32-34V.

RECORD EQUALIZATION ADJUSTMENT

1. Connect a signal generator to the Mic input (Channel 1 on stereo models).
2. Connect a 100Ω resistor in series with the ground lead of Channel 1 Record-Play head. Connect an AC VTVM across the resistor.
3. Set Equalization switch to 7 1/2 ips.
4. Remove oscillator tube. Depress Record button.
5. Set volume (Channel 1) control to maximum.
6. Set generator to 1000∿ and adjust the generator output until the meter indicates .0045V.
7. Turn volume (Channel 1) control toward minimum until meter indicates .0025V.
8. Slowly increase generator frequency to 10KC, maintaining a constant output. Meter should rise steadily to .0073V. If not, adjust A3 (MR241), A6 (SR441), A11 (SS461) until meter indicates .0073V. If necessary, repeat steps 6, 7 and 8.
9. Repeat steps 1 thru 8 for Channel 2 on Model SS461, adjusting A12.
10. Reinsert oscillator tube.

CLEANING

Pressure roller (23), capstan, recording heads, (11 & 13) and erase head (14) should be cleaned occasionally of dirt and foreign matter with a soft cloth and alcohol.

LUBRICATION

These recorders do not require lubrication under normal use. When disassembled for repair, wipe all bearings and sliding levers with a clean soft cloth and apply a thin coat of oil on the surfaces.

TROUBLE CHART

Symptom	Cause	Remedy
Tape fails to move when Play button is depressed.	1. Worn or dirty pressure roller (23).	1. Clean or replace pressure roller (23).
	2. Supply spindle (34) binding.	2. Clean supply spindle (34) or loosen brake cord.
	3. Not enough pressure to hold pressure roller (23) against flywheel (51).	3. Increase tension of back tension spring (45). Pressure should be 22 to 24 oz.
	4. Idler wheel spring (55) weak or missing.	4. Replace idler wheel spring (55).
	5. Posts of idler arm pivot (75) rusted or plate bent.	5. Clean posts or straighten plate.
Tape fails to move when Wind or Rewind button is depressed.	1. Idler drive belt (83) broken or missing.	1. Clean or replace idler drive belt (83).
	2. Brakes (103) too tight.	2. Clean and loosen brake cord from the motor mounting stud side.
	3. Wind or rewind belts (66) broken or too tight.	3. Replace wind or rewind belt (66). Idler pulley arm (57) should have 1/16" ± 1/32" travel from left to right in idler position without stretching the belts.
	4. Idler pulley ass'y. (59) binding.	4. Remove idler pulley (59); clean shaft on arm idler pulley ass'y.; oil and replace pulley.
Variation in speed after recorder has been put in operation.	1. Pressure roller (23) too tight against flywheel (51).	1. Adjust as mentioned in remedy 3 of first symptom.
	2. Oil or dirt on flywheel (51), idler wheel (56), idler pulley (59), or motor pulley.	2. Clean surfaces of these parts with an industrial cleaner.
	3. Wind-Rewind belts (66) too short.	3. Adjust idler pulley arm (57) as mentioned in remedy of preceding symptom.
	4. Pressure pad springs (30) and (39) too tight.	4. Loosen spring by bending anchors back.
No speed change.	1. Arm of speed change bracket (76) has jumped out of grove of idler arm (74).	1. Reposition arm in grove. Straighten speed change bracket (76).

TROUBLE CHART (CON'T.)

Symptom	Cause	Remedy
	2. Speed sliding post gummed up or corroded.	2. Clean or replace sliding post and apply a thin film of oil.
	3. Support bracket of idler arm (74) jumped to left of play lever and cam bracket (46).	3. Bend support bracket (74) down so it will clear top of play lever and cam bracket (46).
Automatic stop does not function and solenoid buzzes.	1. Solenoid arm (96) too far from solenoid.	1. Bend solenoid arm so that there is no more than 1/8" clearance between solenoid arm (96) and solenoid.
Automatic stop does not function.	1. Automatic stop switch not in proper position.	1. Adjust automatic stop switch so it trips when arm passes line of tape travel.
Incomplete Erase.	1. Dirty erase head (14).	1. Clean erase head (14) with soft cloth and alcohol.
	2. Defective electrical components.	2. Check voltages and resistances. Replace defective components.
Recording weak or distorted.	1. Dirty record-playback heads (11 & 13).	1. Clean record-playback head with a soft cloth and alcohol.
	2. Defective electrical components.	2. Check voltages and resistances. Replace defective components.

MECHANICAL PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	TA-1855	Volume Control Knob - Models SS461, SR441	18	TP-1374	Record-Playback Head Lifter Models SS461, SR441
	TK-253-1	Volume Control Knob - Model MR241	19	5133-12	Retaining Ring
2	TK-246-2	Tone Control Knob - Models SS461, SR441	20	TB-2077	Record-Playback Head Pressure Bracket Model SS461
				TB-2130	Record-Playback Head Pressure Bracket Model MR241
	TK-253-1	Tone Control Knob - Model MR241	21	TP-863-1	Felt Pressure Pad Models SS461, SR441
3		Screw, 6-32 x 7/8 Ph. Hd.		TP-863	Felt Pressure Pad Model MR241
4	TA-1856	Escutcheon - Model SS461	22	5133-25	Retaining Ring
	TA-1926	Escutcheon - Model SR441	23	TR-1846	Pressure Roller
	TA-1928	Escutcheon - Model MR241	24		Washer
5	TE-276-9	Escutcheon	25		Washer
6	TP-1492	Dress Plate - Models SS46, SR441	26	TA-1488-1	Pressure Roller Plate Assembly
	TP-1492-1	Dress Plate - Model MR241	27	TW-464	Record-Playback Head Pad Release Models SS461, SR441
7	TK-291	Simul-Track Knob - Model SS461			
8		Screw			Record-Playback Head Pad Release Model MR241
9	TB-2559	Mic jack Bracket			
10		Screw			Washer
11	TH-584	Record-Play Head 1/4 Track Models SS461, SR441	28		Washer
			29		Screw
12	TP-1500	Head Mounting Plate	30	TS-1993	Erase Head Pressure Spring
13	TH-584	Record-Playback Head 1/4 Track Model SS461	31	TB-1067-1	Pressure Roller Stop Plate Brkt.
			32	TB-2151	Motor Board - Model SS461
	TH-494	Record-Playback Head 1/2 Track Model MR241		TB-2151-2	Motor Board - Model SR441, MR241
			33	TB-2553	Meter Mounting Brkt. - Model SS461
14	TH-590	Erase Head, 1/4 Track Model SS461	34	TS-2152	Spindle
	TH-602	Erase Head, 1/2 Track Models SR441, MR241	35	TG-461	Left Tape Guide Post
			36		Washer
15	TB-2319	Erase Head Bracket	37	TB-2073	Record-Playback Head Pressure Bracket
16	TB-2028	Record-Playback Head Bracket Models SS461, SR441	38		Washer
17	TS-1755	Record-Playback Head Adjustment Spring	39	TS-1998	Pressure Pad Spring

Ref. No.	Part No.	Description
40	TB-2076	Erase Head Pressure Bracket-Model SS461
	TB-2137	Erase Head Pressure Bracket - Models SR441, MR241
41	TW-465	Erase Head Pad Release Model SS461
		Erase Head Pad Release - Models SR441, MR241
42	TS-1908	Flywheel Support Stud
43	TS-1988	Pause Linkage Spring
44	TS-2086	Head Lifter Swivel Shaft - Models SS461, SR441
45	TS-2244	Pressure Roller Spring
46	TA-1176-1	Play Lever and Cam Ass'y.
47	TC-1747	Counter Ass'y.
48	TS-1962	Brake Cord Retainer Spacer
49	TB-1050	Brake Cord Retainer Bracket
50	TA-1225	Idler Release Rod Ass'y.
51	TF-324	Flywheel
52	TA-1252	Flywheel Thrust Plate Ass'y.
53		Screw, 6-32 x 1/2 Phil. Hd.
54	TS-2041	Takeup Compression Spring
55	TS-1993	Idler Wheel Spring
56 *	TW-424 *	Idler Wheel *
57	TA-1163	Idler Pulley Arm Ass'y.
58		Washer
59	TA-1489	Idler Pulley Ass'y.
60	TW-454	Fiber Thrust Washer
61	5133-25	Retaining Ring
62	TR-1614	Counter Drive Belt
63	TA-1183	Counter and Brake Pulley Ass'y.
64		Set Screw
65	TA-265	Spindle Pulley for Drive Belt
66	TB-1018	Wind or Rewind Belt
67	TS-1990	Brake Spring
68	TS-2245	Cam Lever Spring
69	TA-1743	Push Rod Ass'y.

Ref. No.	Part No.	Description
70	TA-1170-1	Automatic Shutoff Bracket Ass'y.
71	TA-1173-1	Brake Arm Ass'y.
72	TP-1008	Speed Selector Locking Plate
73	TA-1169	Automatic Stop Actuator
74	TA-1172	Idler Arm Support Speed Change Ass'y.
75	TA-1174-1	Idler Arm Pivot Ass'y.
76	TA-1251	Speed Selector Bracket Ass'y.
77	TC-1741	Speed Indicator Wheel
78	TS-1981	Rewind Spring
79	TS-2028	Wind Spring
80	TL-346	Wind Spring Link
81	TL-367	Rewind Spring Link
82	TA-1164	Brake Pulley Ass'y.
83 *	TR-1548 *	Idler Drive Belt *
84	TS-1963	Motor Mount Spacer
85	TM-415	Motor Shock Mount
86	TP-1003	Motor Mounting Plate
87	TA-1253	Motor and Pulley Ass'y.
88		Felt Washer, 1/4 I. D. x 11/16 O. D.
89	TF-342	Fan
90	TR-1537	Pushbutton Lever Retainer
91	TB-1010-2	Pushbutton
92	TS-1984	Pushbutton Latch Spring
93	TS-1985	Pushbutton Spring
94	TA-1349	Pushbutton Bracket Ass'y.
95	TL-355	Pushbutton Lever Latch
96	TL-361	Solenoid Lever
97	TA-1560	Record Switch Lever Ass'y.
98		Washer .203 I. D. x 3/8 O. D. x 1/32
99	TS-1986	Record Switch Spring
100	5133-18	Retaining Ring
101	TA-1227	Pushbutton Shaft Ass'y.
102	TS-2085	Brake Cord Spring
103	TB-1093	Brake Cord Dacron 24" Long
104	TS-1980	Speed Selector Spring

* Item 56 - WALSCO #1475
Item 83 - WALSCO #1410-06

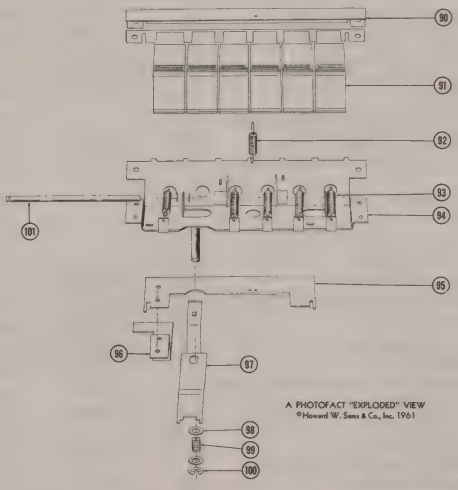
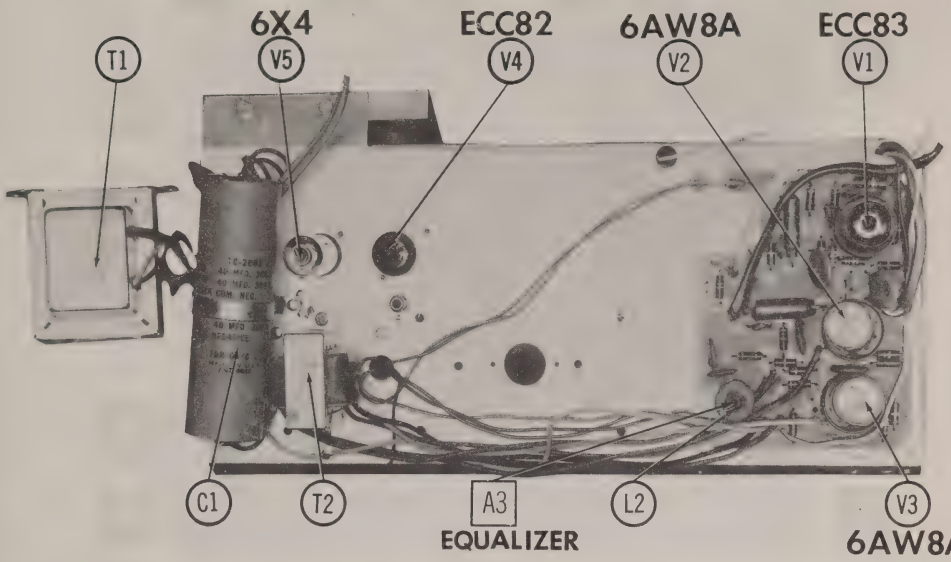
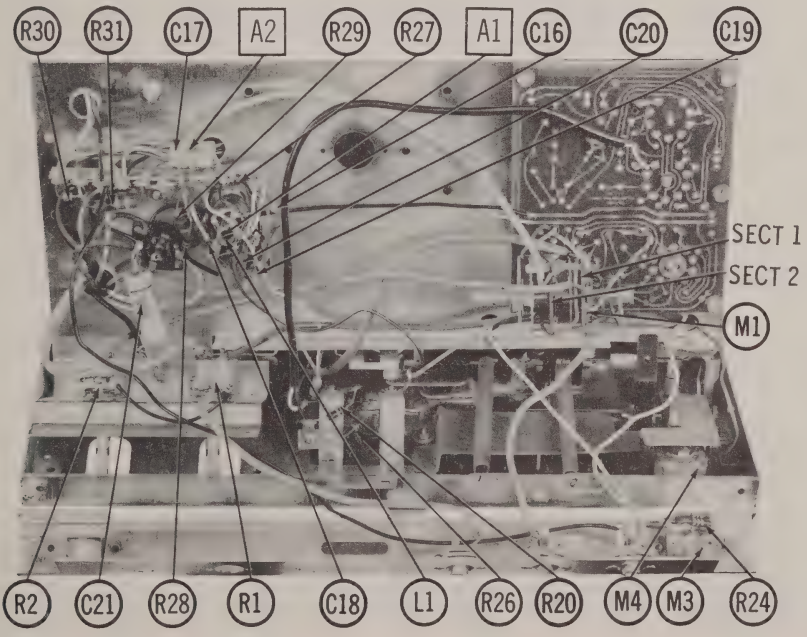


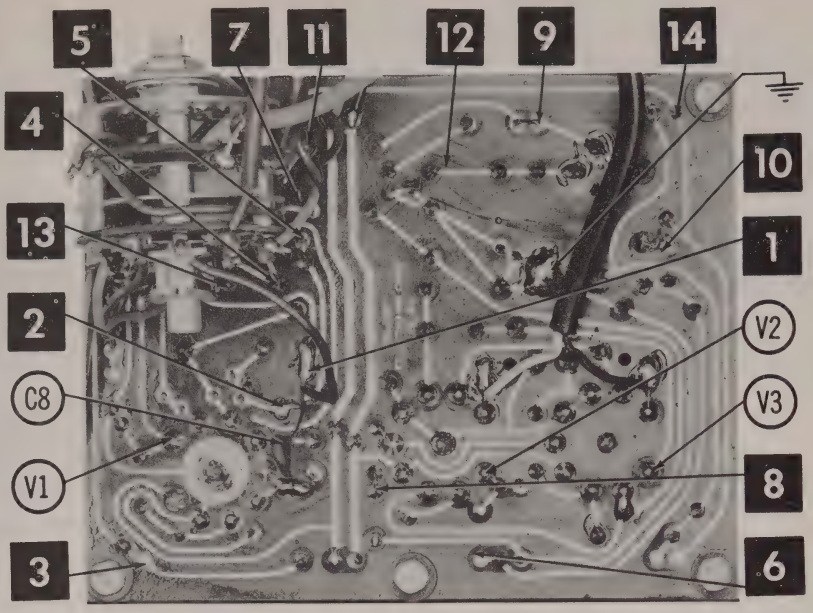
FIG.3A EXPLODED VIEW OF PUSHBUTTON ASSEMBLY



MODEL MR-241 CHASSIS — TOP VIEW



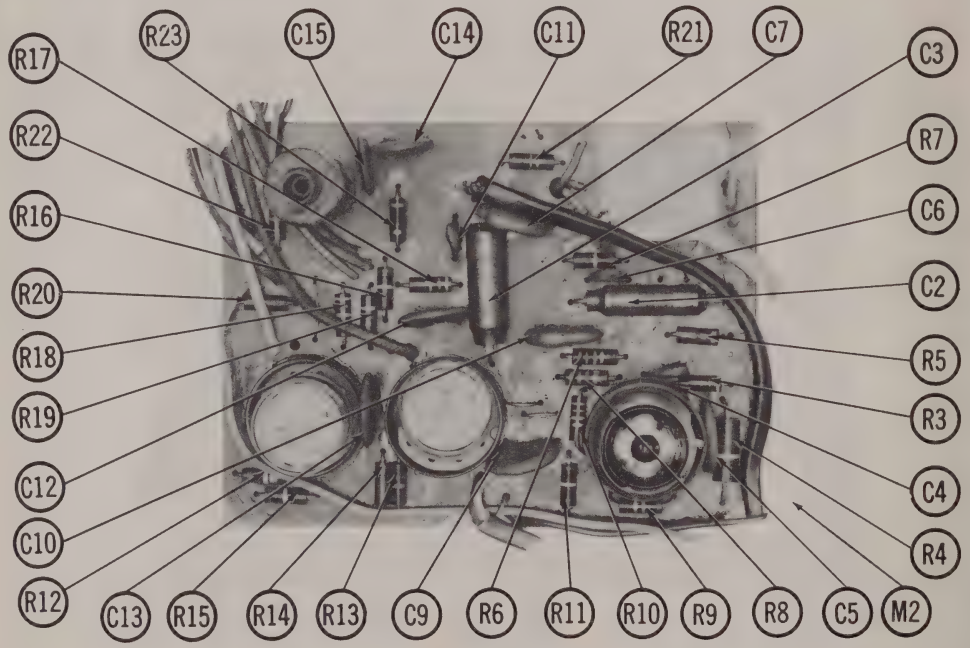
MODEL MR-241 — BOTTOM VIEW



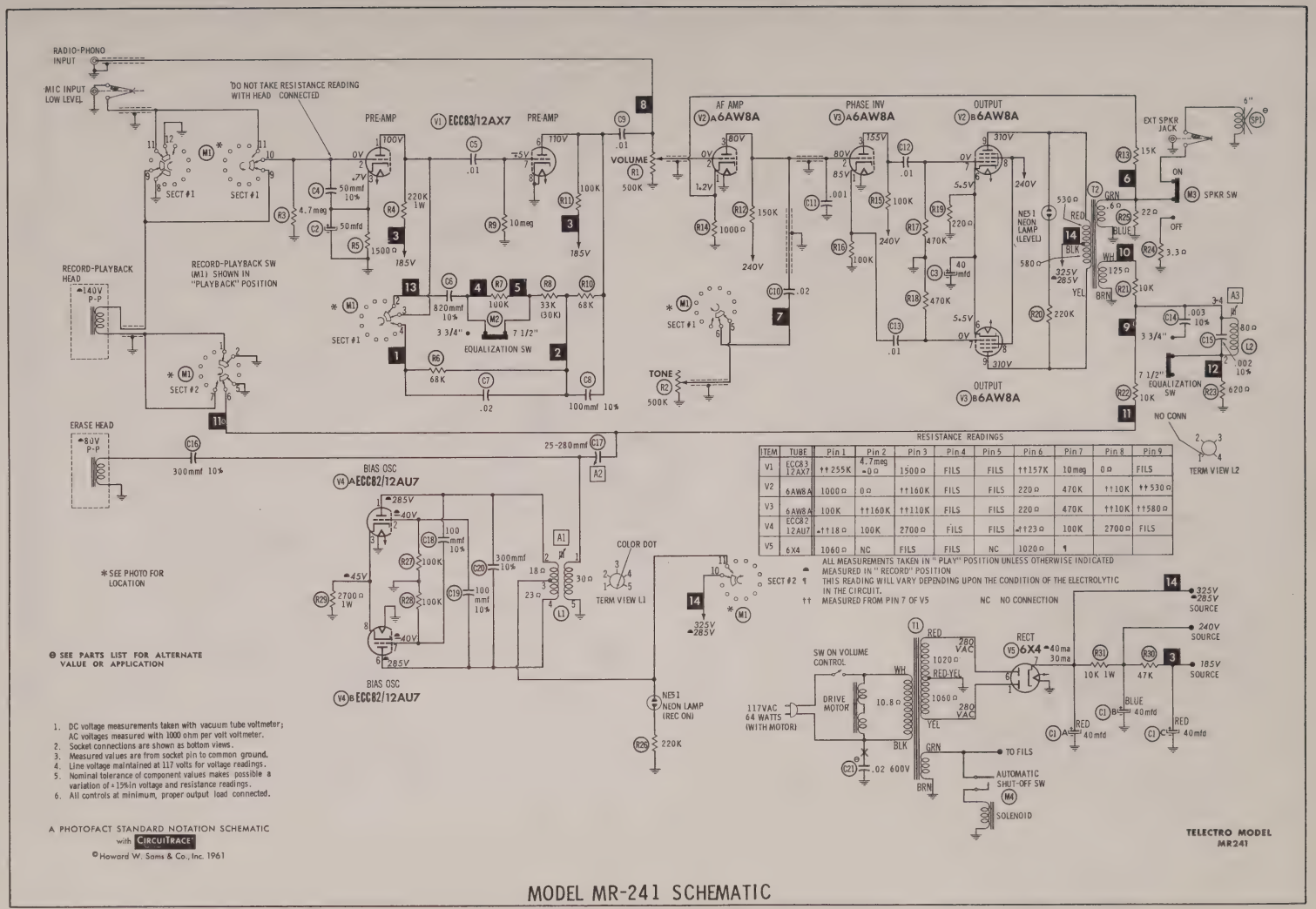
A Howard W. Sams CIRCUITRACE® Photo

MODEL MR-241 PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



MODEL MR-241 PRINTED BOARD—TOP VIEW



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC83 12AX7	††255K	4.7meg ±0Ω	1500Ω	FILS	FILS	††157K	10meg	0Ω	FILS
V2	6AW8A	1000Ω	0Ω	††160K	FILS	FILS	220Ω	470K	††10K	††530Ω
V3	6AW8A	100K	††160K	††110K	FILS	FILS	220Ω	470K	††10K	††580Ω
V4	ECC82 12AU7	±††18Ω	100K	2700Ω	FILS	FILS	±††23Ω	100K	2700Ω	FILS
V5	6X4	1060Ω	NC	FILS	FILS	NC	1020Ω	¶		

ALL MEASUREMENTS TAKEN IN "PLAY" POSITION UNLESS OTHERWISE INDICATED
MEASURED IN "RECORD" POSITION
THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
†† MEASURED FROM PIN 7 OF V5 NC NO CONNECTION

MODEL MR-241 SCHEMATIC

TELECTRO MODELS
MR241, SR241, SR461

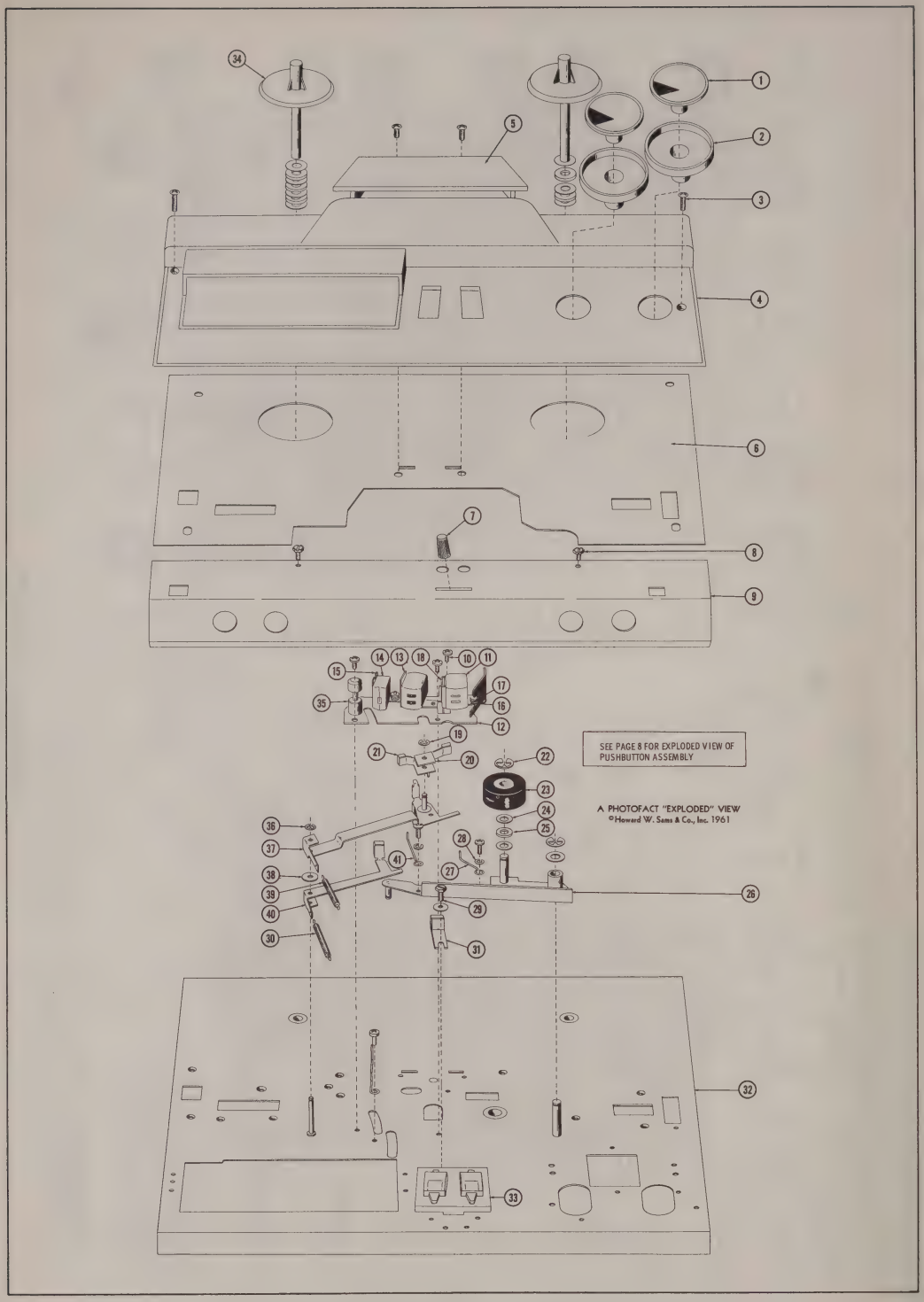


FIG.3B EXPLODED VIEW OF PARTS ABOVE MOTOR BOARD

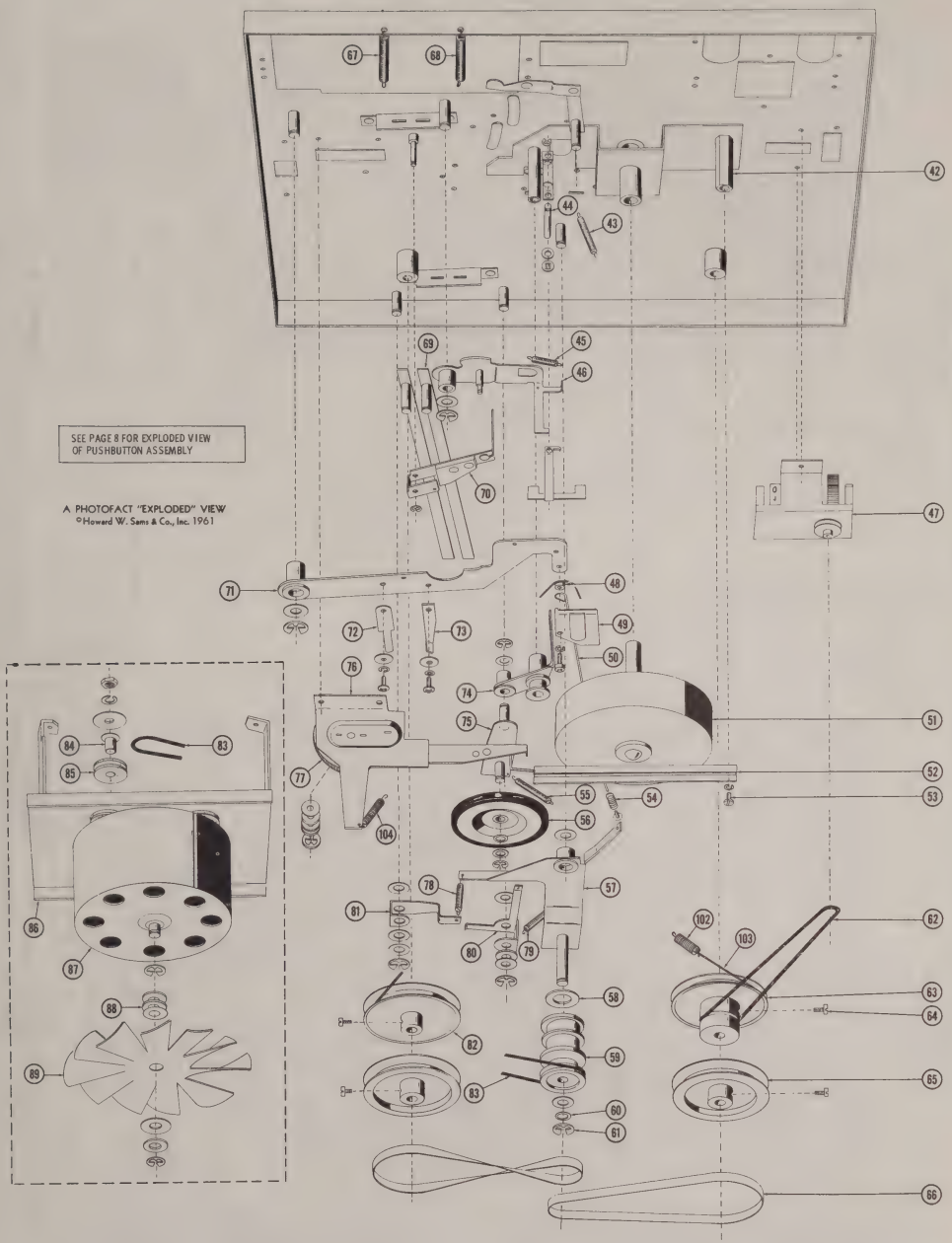


FIG.3C EXPLODED VIEW OF PARTS BELOW MOTOR BOARD

MODEL MR—241 AMP PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •)
V1	Preamp.	ECC83/12AX7
V2	AF Amp. -Output	6AW8A
V3	Phase Inv. -Output	6AW8A
V4	Bias Oscillator	ECC82/12AU7
V5	Rectifier	6X4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	TELECTRO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	40	300	TC-2001	PR3-020	BBRT0185	QT4-3	WQ795	CDBQ-4422	TVAS-3745*
B	40	300							
C	40	300							
C2	50	3	TC-1550	PTT12	NLW50-3	MT1-15	TT6X50	MLV50-3	TE-1058
C3	40	10	TC-1996	PTT44	NLW40-10	MT1-16	TT15X40	MLV40-12	TE-1119

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	50 10%		DI-50	DD-500	L10Q5	CCD-500	GP450	10TS-Q50
C5	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C6	820 10%		DI-820	DD-821	5R5T82	CCD-821	GP382	10TS-T82
C7	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C8	100 10%		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C9	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C10	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C11	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C12	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C13	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	.003 10%		DI-3000	DD-302	1R5D3	CCD-302	JL-233	10TS-D30
C15	.002 10%		DI-2000	DD-202	5R5D2	CCD-202	GP220	10TS-D20
C16	300 10%		DI-300	DD-301	L10T3	CCD-301	GP330	10TS-T30
C17	25-280	#TC-2007				464		
C18	100 10%		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C19	100 10%		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C20	300 10%		1469-0003	TCZ-300	5R5T3	CM-19B-301K	MCB241	MS-330
C21	.02 600V	Note 1	P288N-02	DD-203	CUB6S2	6DP-2-203	GEM-612	6TM-S20

Note 1. Not used in some versions.
* Telectro Part Number.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	TELECTRO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	TP-1119	B-60-S	A47-500K-Z	Q13-133	U48	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-12	76-1	US-26	Power Off-On
R2A	500K	½	TP-1120	B-60	A47-500K-Z	Q13-133	U48	Tone
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	IRC PART No.	WORKMAN TV PART No.	REMARKS
R3	4.7meg			
R4	220K 1W			
R5	1500Ω			
R6	68K			
R7	100K			
R8	33K			(30K) *

RESISTORS (cont)

ITEM No.	RATING	IRC PART No.	WORKMAN TV PART No.	REMARKS
R9	10meg			
R10	68K			
R11	100K			
R12	150K			
R13	15K			
R14	1000Ω			
R15	100K			
R16	100K			
R17	470K			
R18	470K			
R19	220Ω			
R20	220K			
R21	10K			
R22	10K			
R23	620Ω			
R24	3.3Ω			
R25	22Ω			
R26	220K			
R27	100K			
R28	100K			
R29	2700Ω 1W			
R30	47K			
R31	10K 1W			

* Alternate Value.

COILS (RF-IF)

ITEM No.	USE	TELECTRO PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	Osc.						(65KC)
L2	Equalizer						

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	TELECTRO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V@ .3A	560VCT @.040A DC	6.3V@ 2.5A	TT-771-1					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC. 1	TELECTRO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	20K CT	3-4Ω	TT-774					
		SEC. 2						
		2900Ω						

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	TELECTRO PART No.	QUAM PART No.	NOTES
SP1	6"	PM	3-4Ω	TS-3563*	6A21	* Alternate Part #TS-1928

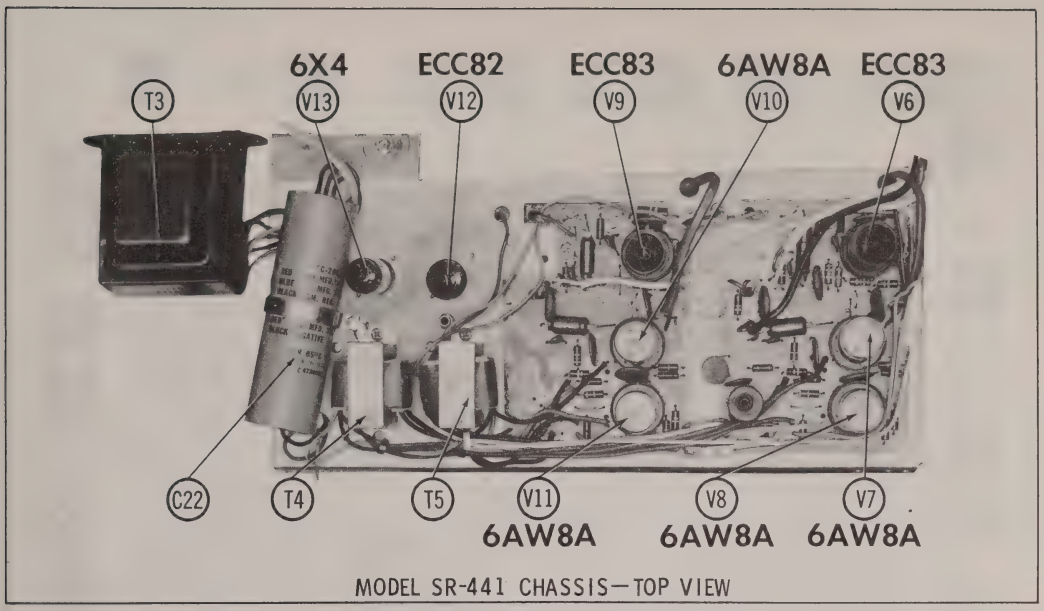
MISCELLANEOUS

ITEM No.	PART NAME	TELECTRO PART No.	NOTES
M1	Switch	TS-2223	Function Selector (Rotary Type, Actuated by Pushbuttons)
M2	Switch	TS-3484	Equalization (Slide Type)
M3	Switch	TS-1997	Speaker Off-On (DPDT Slide Type)
M4	Solenoid		(Includes SPST Switch Leaf Part #TS-1999)

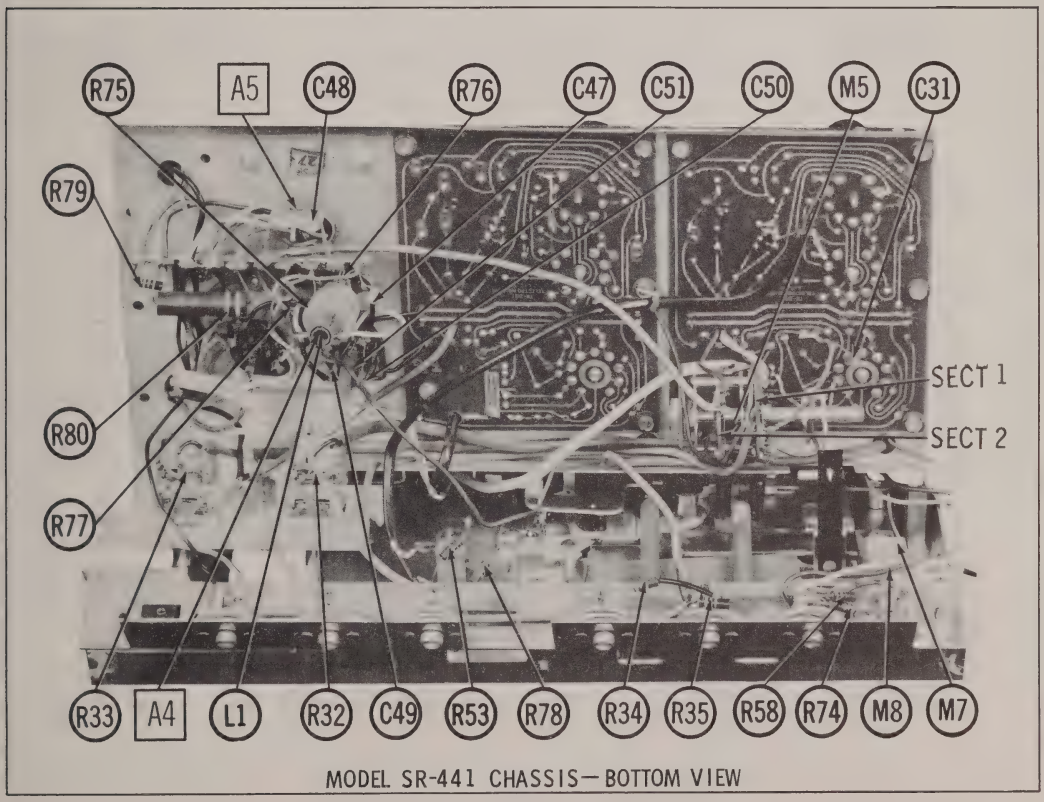
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

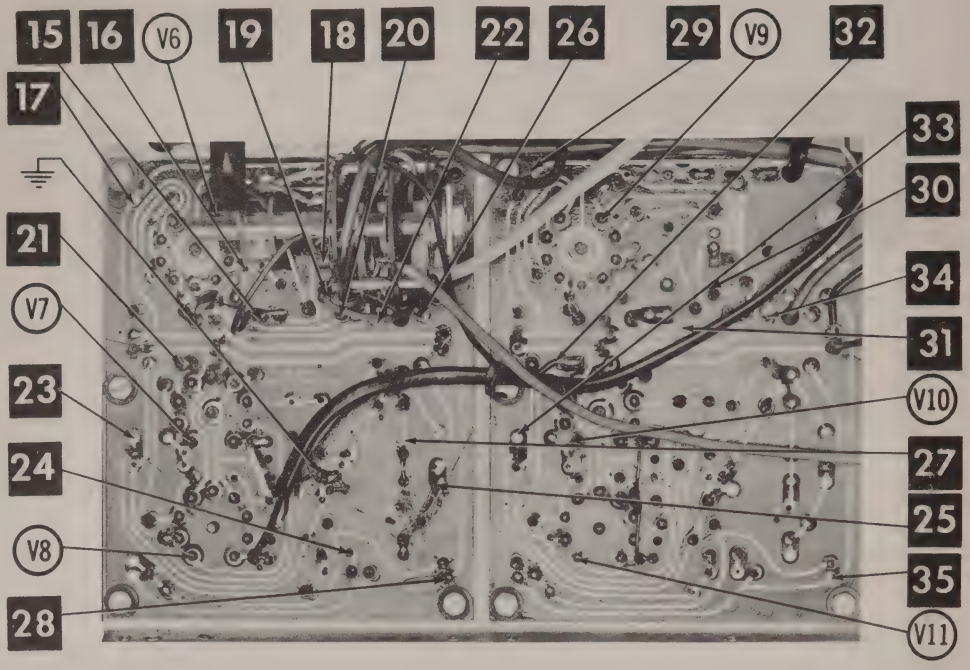
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)



MODEL SR-441 CHASSIS—TOP VIEW



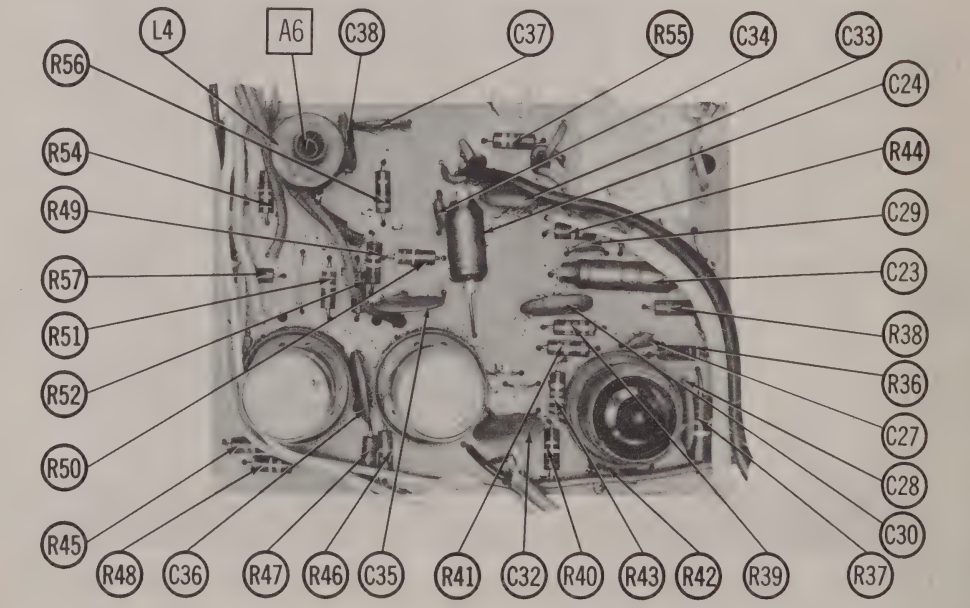
MODEL SR-441 CHASSIS—BOTTOM VIEW



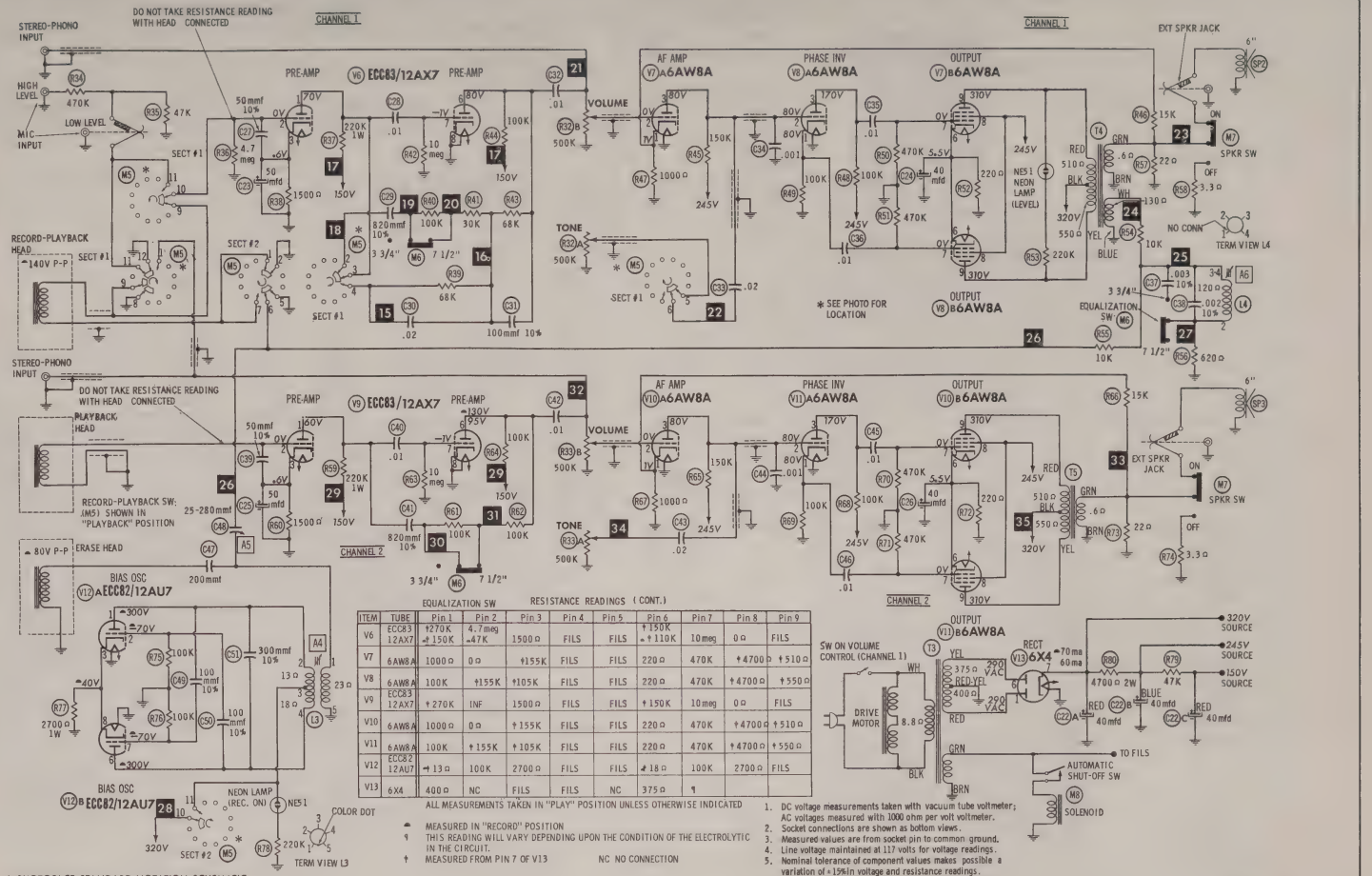
A Howard W. Sams CIRCUITRACE® Photo

MODEL SR-441 PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



MODEL SR-441 CHANNEL 1—TOP VIEW



EQUALIZATION SW

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V6	ECC83 12AX7	↑270K ↓150K	4.7meg ↓47K	1500Ω	FILS	FILS	↑150K ↓↑110K	10meg	0Ω	FILS
V7	6AW8A	1000Ω	0Ω	↑155K	FILS	FILS	220Ω	470K	↑4700Ω	↑510Ω
V8	6AW8A	100K	↑155K	↑105K	FILS	FILS	220Ω	470K	↑4700Ω	↑550Ω
V9	ECC83 12AX7	↑270K	INF	1500Ω	FILS	FILS	↑150K	10meg	0Ω	FILS
V10	6AW8A	1000Ω	0Ω	↑155K	FILS	FILS	220Ω	470K	↑4700Ω	↑510Ω
V11	6AW8A	100K	↑155K	↑105K	FILS	FILS	220Ω	470K	↑4700Ω	↑550Ω
V12	ECC82 12AU7	↓13Ω	100K	2700Ω	FILS	FILS	↓18Ω	100K	2700Ω	FILS
V13	6X4	400Ω	NC	FILS	FILS	NC	375Ω	¶		

RESISTANCE READINGS (CONT.)

ALL MEASUREMENTS TAKEN IN "PLAY" POSITION UNLESS OTHERWISE INDICATED

↓ MEASURED IN "RECORD" POSITION
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
↑ MEASURED FROM PIN 7 OF V13 NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

© Howard W. Sams & Co., Inc. 1961

TELECTRO MODEL SR441

MODEL SR-441 SCHEMATIC

TELECTRO MODELS
MR241, SR441, SR461

MODEL 5R–441 AMP PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (GENERAL ELECTRIC • RAYTHEON • SYLVANIA)
V6	Channel 1 Preamp.	ECC83/12AX7
V7	Channel 1 AF Amp. -Output	6AW8A
V8	Channel 1 Phase Inv. -Output	6AW8A
V9	Channel 2 Preamp.	ECC83/12AX7
V10	Channel 2 AF Amp. -Output	6AW8A
V11	Channel 2 Phase Inv. -Output	6AW8A
V12	Bias Oscillator	ECC82/12AU7
V13	Rectifier	6X4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	TELECTRO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C22A	40	300	TC-2001	PR3-020	BBRT0185	QT4-3	WQ795	CDBQ-4422	TVAS-3745*
B	40	300							
C	40	300							
C23	50	3	TC-1550	PTT12	NLW50-3	MT1-15	TT6X50	MLV50-3	TE-1058
C24	40	10	TC-1996	PTT44	NLW40-10	MT1-16	TT15X40	MLV40-12	TE-1119
C25	50	3	TC-1550	PTT12	NLW50-3	MT1-15	TT6X50	MLV50-3	TE-1058
C26	40	10	TC-1996	PTT44	NLW40-10	MT1-16	TT15X40	MLV40-12	TE-1119

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C27	50 10%		DI-50	DD-500	L10Q50	CCD-500	GP450	10TS-Q50
C28	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C29	820 10%		DI-820	DD-821	5R5T82	CCD-821	GP382	10TS-T82
C30	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C31	100 10%		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C32	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C33	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C34	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C35	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C36	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C3	.003		DI-3000		1R5D3	CCD-302	JL-233	10TS-D30
C38	.002 10%		DI-2000		5R5D2	CCD-202	GP320	10TS-D20
C39	50 10%		DI-50	DD-500	L10Q50	CCD-500	GP450	10TS-Q50
C40	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C41	820 10%		DI-820	DD-821	5R5T82	CCD-821	B-382	10TS-T82
C42	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C43	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C44	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C45	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C46	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C47	200		DI-200	DD-201	L10T2	CCD-201	GP320	10TS-T20
C48	25-280	#TC-2007				464		
C49	100 10%		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C50	100 10%		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C51	300 10%		1469-0003	TCZ-300	5R5T3	CM-19B-301K	MCB241	MS-330

Telectro Part Number.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	TELECTRO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R32A	500K	½	TC-1721	F1-41		† QJ-1510R	■ UE4182S	Tone, Channel 1
B	500K	½		R2-41				Volume, Channel 1
C	Switch			KR-1				Power Off-On
R33A	500K	½	TC-1721	F1-41		† QJ-1510R	■ UE4182S	Tone, Channel 2
B	500K	½		R2-41				Volume, Channel 2
C	Switch			KR-1				(Not Used)

† "CONCENTRIKIT" Equivalent: K-15 Kit with Base Elements and Shafts: Bi3-133, Pi7-024 (Panel)
(Not available as a factory assembled unit). Bi3-133, Ri-103 (Rear)
76-1 (Switch)

■ "STA-LOC" Equivalent: FB55A, RU55A, OS750A, IS1187, US-41.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R34	470K			
R35	47K			
R36	4.7meg			
R37	220K 1W			
R38	1500Ω			
R39	68K			
R40	100K			
R41	30K			
R42	10meg			
R43	68K			
R44	100K			
R45	150K			
R46	15K			
R47	1000Ω			
R48	100K			
R49	100K			
R50	470K			
R51	470K			
R52	220Ω			
R53	220K			
R54	10K			
R55	10K			
R56	620Ω			
R57	22Ω			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R58	3.3Ω			
R59	220K 1W			
R60	1500Ω			
R61	100K			
R62	100K			
R63	10meg			
R64	100K			
R65	150K			
R66	15K			
R67	1000Ω			
R68	100K			
R69	100K			
R70	470K			
R71	470K			
R72	220Ω			
R73	22Ω			
R74	3.3Ω			
R75	100K			
R76	100K			
R77	2700Ω 1W			
R78	220K			
R79	47K			
R80	4700Ω 2W			

COILS (RF-IF)

ITEM No.	USE	TELECTRO PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L3	Osc.						(65KC)
L4	Equalizer						

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	TELECTRO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T3	117V Ⓐ .52A	580VCT Ⓐ .070A DC	6.3V Ⓐ 4A	TT-770-1					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	TELECTRO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T4	20K CT	3-4Ω	TT-774					
		SEC. 2						
		2900Ω						
		SEC. 1						
T5	18K CT	3-4Ω	TT-774-2	A-2900	A-3850	24S04	S-52X	

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	TELECTRO PART No.	QUAM PART No.	NOTES
SP2	6"	PM	3-4Ω	TS-1928	6A21	
SP3	6"	PM	3-4Ω	TS-1928	6A21	

MODEL SR—441 AMP PARTS LIST (Continued)

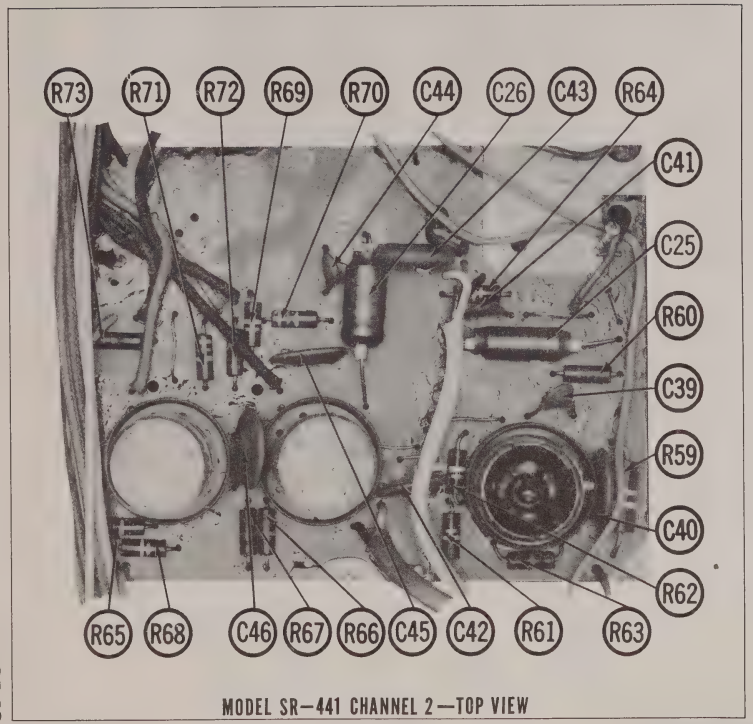
MISCELLANEOUS

ITEM No.	PART NAME	TELECTRO PART No.	NOTES
M5	Switch	TS-2223	Function Selector (Rotary Type, Actuated by Pushbuttons)
M6	Switch	TS-3484	Equalization (Slide Type)
M7	Switch	TS-1997	Speaker Off-On (DPDT Slide Type)
M8	Solenoid		(Includes SPST Switch Leaf Part #TS-1999)

WIRING DATA

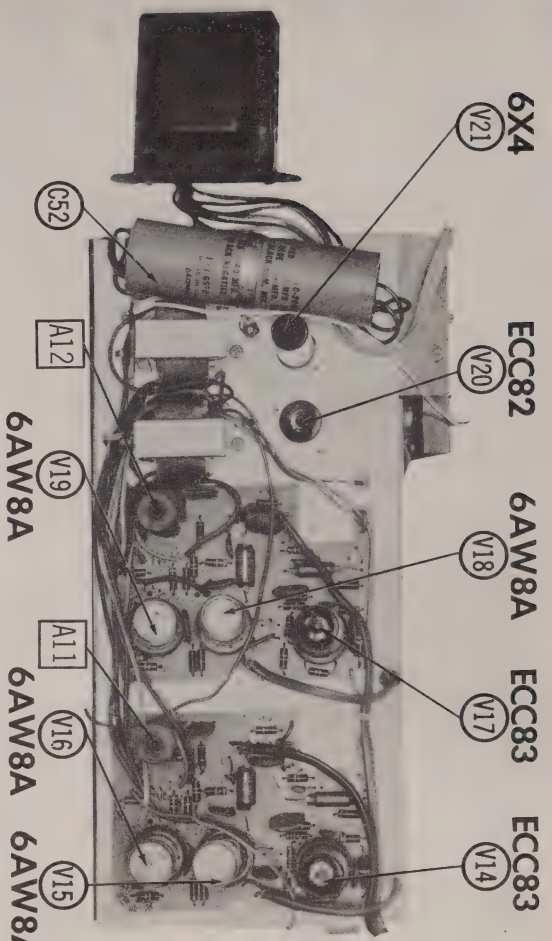
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

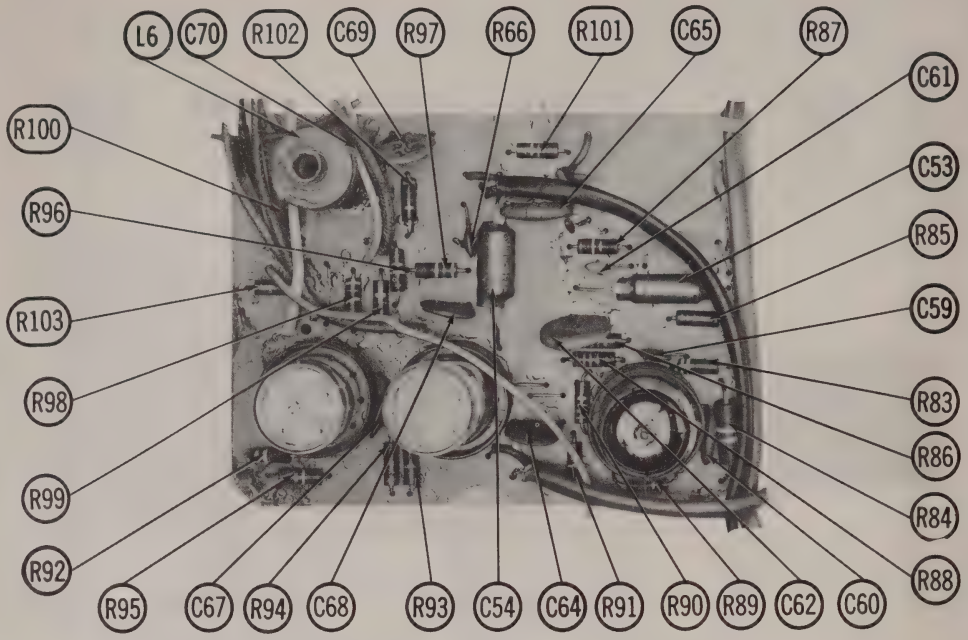
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)



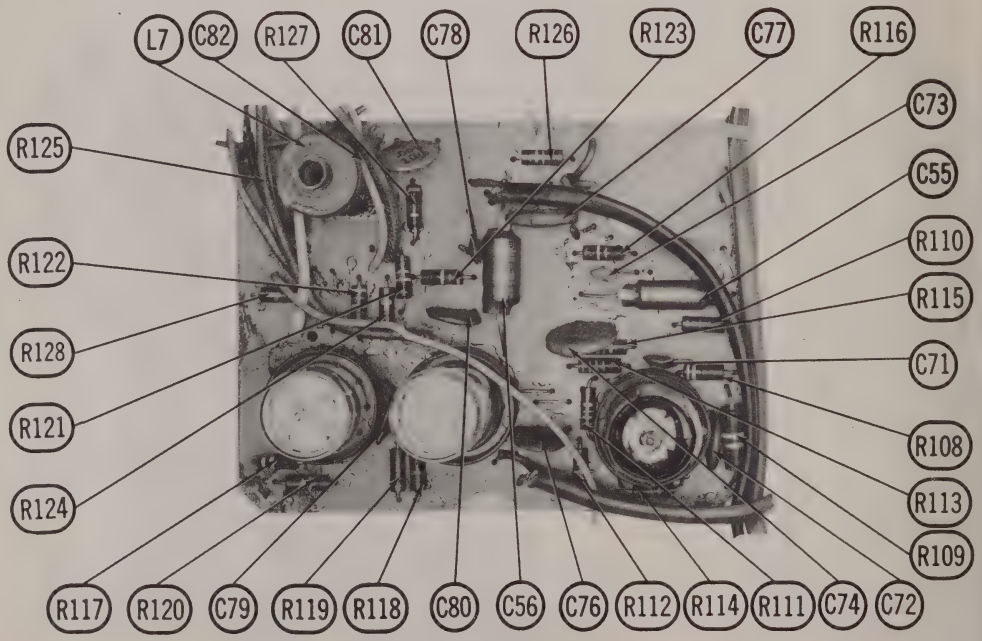
MODEL SR—441 CHANNEL 2—TOP VIEW

MODEL SS—461 CHASSIS—TOP VIEW

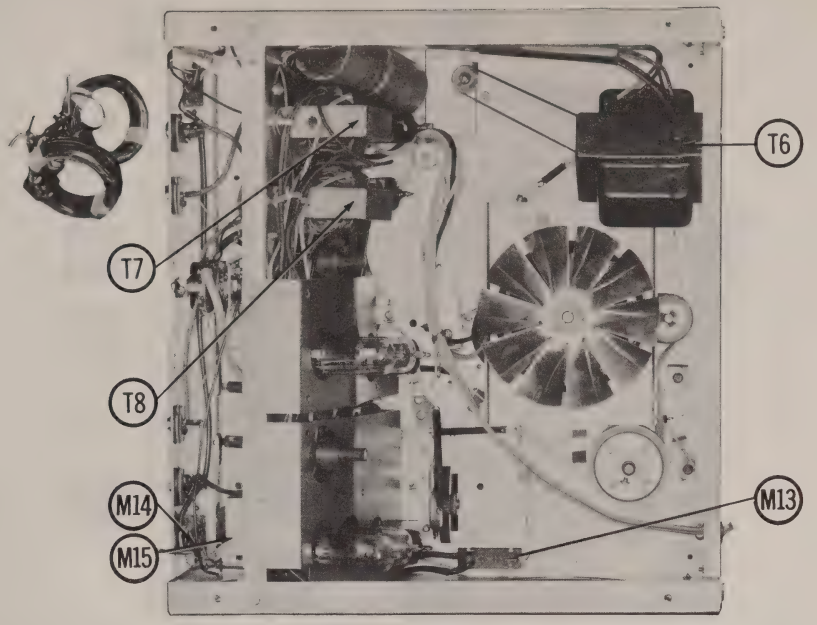




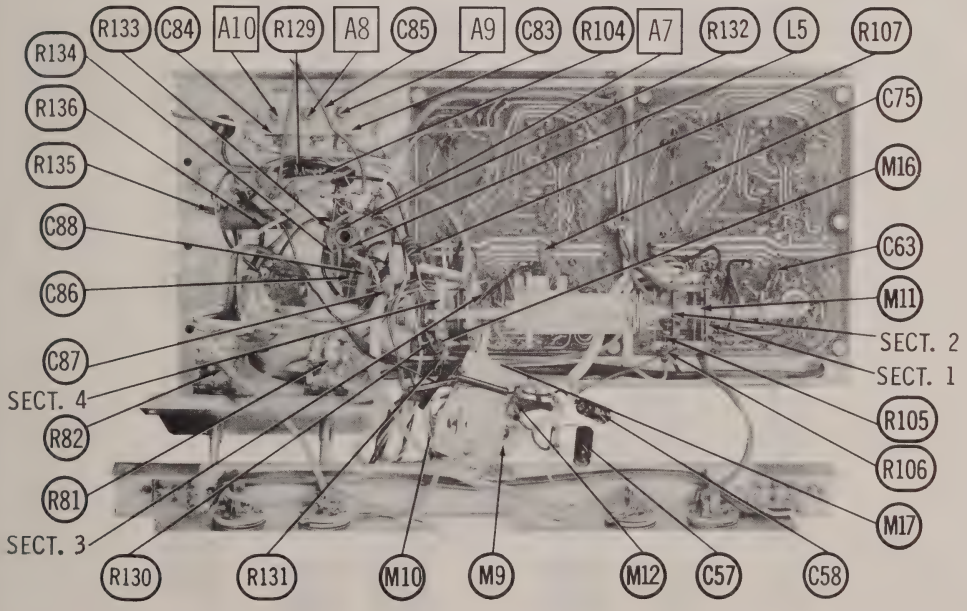
MODEL SS-461 CHANNEL 1—TOP VIEW



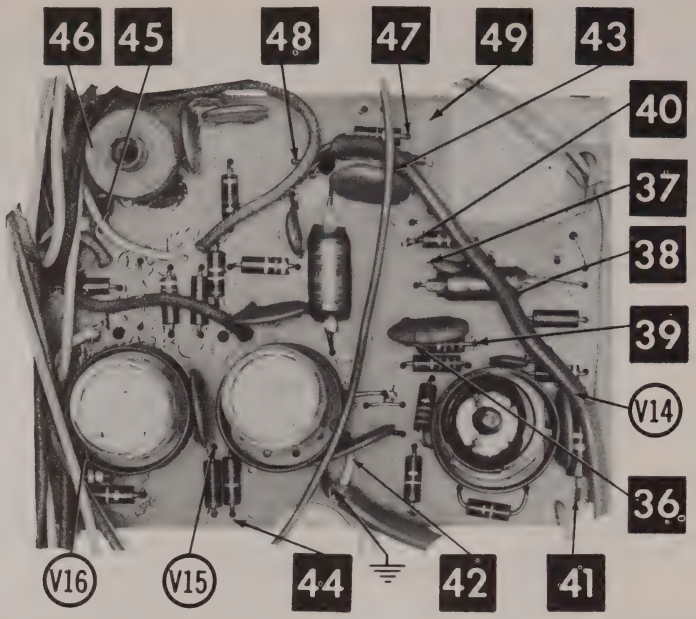
MODEL SS-461 CHANNEL 2—TOP VIEW



MODEL SS-461 BOTTOM VIEW



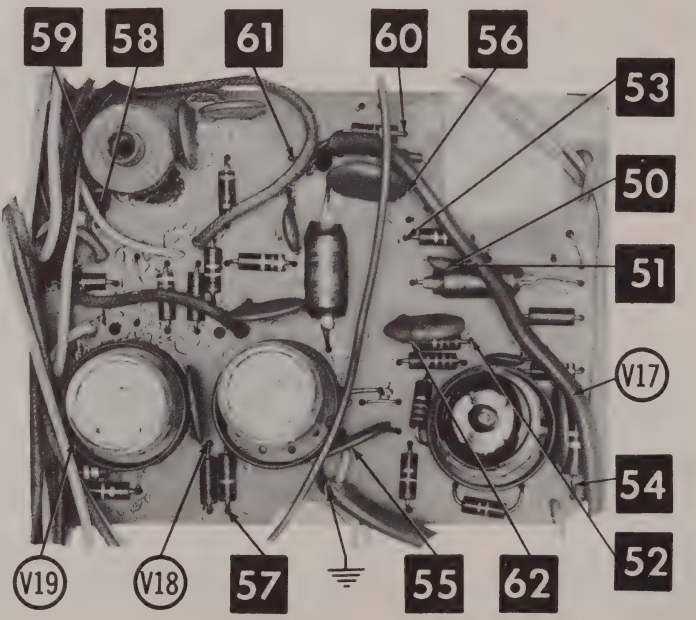
MODEL SS-461 CHASSIS—BOTTOM VIEW



A Howard W. Sams CIRCUITRACE Photo

MODEL SS-461 CHANNEL 1—PRINTED BOARD

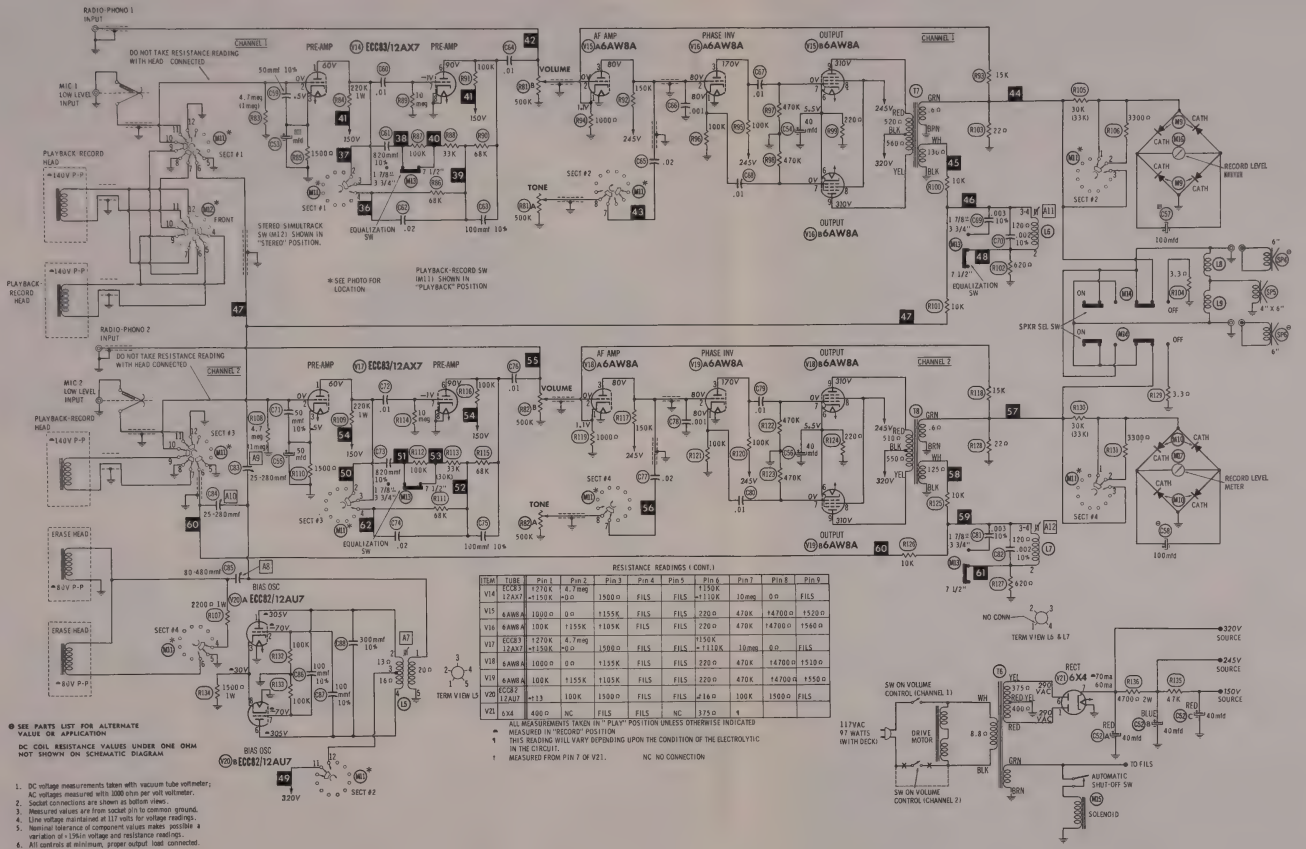
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



A Howard W. Sams CIRCUITRACE Photo

MODEL SS-461 CHANNEL 2—PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



RESISTANCE READINGS (CONT.)

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V14	ECC83 12AX7	†270K •150K	4.7meg •0Ω	1500Ω	FILS	FILS	†150K •110K	10meg	0Ω	FILS
V15	6AW8A	1000Ω	0Ω	†155K	FILS	FILS	220Ω	470K	†4700Ω	†520Ω
V16	6AW8A	100K	†155K	†105K	FILS	FILS	220Ω	470K	†4700Ω	†560Ω
V17	ECC83 12AX7	†270K •150K	4.7meg •0Ω	1500Ω	FILS	FILS	†150K •110K	10meg	0Ω	FILS
V18	6AW8A	1000Ω	0Ω	†155K	FILS	FILS	220Ω	470K	†4700Ω	†520Ω
V19	6AW8A	100K	†155K	†105K	FILS	FILS	220Ω	470K	†4700Ω	†550Ω
V20	ECC82 12AU7	▲†13	100K	1500Ω	FILS	FILS	▲16Ω	100K	1500Ω	FILS
V21	6X4	400Ω	NC	FILS	FILS	NC	375Ω	¶		

▲ ALL MEASUREMENTS TAKEN IN "PLAY" POSITION UNLESS OTHERWISE INDICATED
MEASURED IN "RECORD" POSITION
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V21. NC NO CONNECTION

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1961

TELECTRO MODEL SS461

MODEL SS-461 SCHEMATIC

MODEL SS–461 AMP PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE
V14	Channel 1 Preamp.	ECC83/12AX7
V15	Channel 1 AF Amp. -Output	6AW8A
V16	Channel 1 Phase Inv. - Output	6AW8A
V17	Channel 2 Preamp.	ECC83/12AX7
V18	Channel 2 AF Amp. -Output	6AW8A
V19	Channel 2 Phase Inv. - Output	6AW8A
V20	Bias Oscillator	ECC82/12AU7
V21	Rectifier	6X4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	TELECTRO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C52A	40	300	TC-2001	PR3-020	BBRT0185	QT4-3	WQ795	CDBQ-4422	TVAS-3745*
B	40	300							
C	40	300							
C53	50	3	TC-1550	PTT12	NLW50-3	MT1-15	TT6X50	MLV50-3	TE-1058
C54	40	10	TC-1996	PTT44	NLW40-10	MT1-16	TT15X40	MLV40-12	TE-1119
C55	50	3	TC-1550	PTT12	NLW50-3	MT1-15	TT6X50	MLV50-3	TE-1058
C56	40	10	TC-1996	PTT44	NLW40-10	MT1-16	TT15X40	MLV40-12	TE-1119
C57	100	10	Note 1	PTT46	NLW100-12	MT1-19	TT15X100	MLV100-10	TE-1119.3
C58	100	10	Note 1	PTT46	NLW100-12	MT1-19	TT15X100	MLV100-10	TE-1119.3

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
Note 1. Not used in some versions.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C59	50 10%		DI-50	DD-500	L10Q5	CCD-500	GP450	10TS-Q50
C60	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C61	820 10%		DI-820	DD-821	5R5T82	CCD-821	GP382	10TS-T82
C62	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C63	100 10%		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C64	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C65	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C66	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C67	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C68	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C69	.003 10%		DI-3000		1R5D3	CCD-302	JL-233	10TS-D30
C70	.002 10%		DI-2000		5R5D2	CCD-202	GP220	10TS-D20
C71	50 10%		DI-50	DD-500	L10Q5	CCD-500	GP450	10TS-Q50
C72	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C73	820 10%		DI-820	DD-821	5R5T82	CCD-821	GP382	10TS-T82
C74	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C75	100 10%		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C76	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C77	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C78	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C79	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C80	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C81	.003 10%		DI-3000		1R5D3	CCD-302	JL-233	10TS-D30
C82	.002 10%		DI-2000		5R5D2	CCD-202	GP220	10TS-D20
C83	25-280	#TC-2007				464		
C84	25-280	#TC-2007				464		
C85	80-480	#TC-2276				466		
C86	100 10%		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C87	100 10%		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C88	300 10%		1469-0003	TCZ-300	22R5T3	CM-19B-301K	MCB235	MS-33

Telectro Part Number.

MODEL SS—461 AMP PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA TELECTRO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R81A	500K		TC-1721	F1-41		† QJ-1510R	■ UE4182S	Tone, Channel 1
B	500K			R2-41				Volume, Channel 1
C	Switch			KR-1				Power Off-On
R82A	500K		TC-1721	F1-41		† QJ-1510R	■ UE4182S	Tone, Channel 2
B	500K			R2-41				Volume, Channel 2
C	Switch			KR-1				Power Off-On

† "CONCENTRIKIT" Equivalent: K-15 Kit with Base Elements and Shafts: B13-133, P17-024 (Panel)
(Not available as a factory assembled unit). B13-133, R1-103 (Rear)
76-1 (Switch)

■ "STA-LOC" Equivalent: FB55A, RU55A, OS750A, IS1187, US-41.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R83	4.7meg			(1meg) *
R84	220K 1W			
R85	1500Ω			
R86	68K			
R87	100K			
R88	33K			(30K) *
R89	10meg			
R90	68K			
R91	100K			
R92	150K			
R93	15K			
R94	1000Ω			
R95	100K			
R96	100K			
R97	470K			
R98	470K			
R99	220Ω			
R100	10K			
R101	10K			
R102	620Ω			
R103	22Ω			(33K) *
R104	3.3Ω			
R105	30K			(33K) *
R106	3300Ω			
R107	2200Ω 1W			
R108	4.7meg			(1meg) *
R109	220K 1W			
R110	1500Ω			
R111	68K			
R112	100K			
R113	33K			(30K) *
R114	10meg			
R115	68K			
R116	100K			
R117	150K			
R118	15K			
R119	1000Ω			
R120	100K			
R121	100K			
R122	470K			
R123	470K			
R124	220Ω			
R125	10K			
R126	10K			
R127	620Ω			
R128	22Ω			
R129	3.3Ω			
R130	30K			(33K) *
R131	3300Ω			
R132	100K			
R133	100K			
R134	1500Ω 1W			
R135	47K			
R136	4700Ω 2W			

* Alternate Value.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA TELECTRO PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L5	Osc.						(65KC)
L6	Equalizer						
L7	Equalizer						
L8	Crossover (1MH)						
L9	Crossover (1MH)						

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA TELECTRO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T6	117V@ .52A	580VCT @.070A DC	6.3V@ 4A	TT-770-1					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA TELECTRO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T7	20K CT	3-4Ω	TT-774					
		SEC. 2						
		2900Ω						
		SEC. 1						
T8	20K CT	3-4Ω	TT-774-1					
		SEC. 2						
		2900Ω						

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA TELECTRO PART No.	QUAM PART No.	NOTES
SP4	6"	PM	3-4Ω	TS-1928 *	6A21	* Alternate Part #TS-3563
SP5	4"x 6"	PM	3-4Ω	TS-1671	46A07	
SP6	6"	PM	3-4Ω	TS-1928*	6A21	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA TELECTRO PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	NOTES
M9		*			* Bridge Rectifier for Meter.
M10		*			

MISCELLANEOUS

ITEM No.	PART NAME	TELECTRO PART No.	NOTES
M11	Switch	TS-3378	Function Selector (Rotary Type, Actuated by Pushbuttons)
M12	Switch		Stereo-Monaural (Rotary Type)
M13	Switch	TS-3484	Equalization (Slide Type)
M14	Switch	TS-19997	Speaker Selector (DPDT Slide Type)
M15	Solenoid		(Includes SPST Switch Leaf Part #TS-1999)
M16	Meter	TM-487	Channel 1
M17	Meter	TM-487	Channel 2

CABINETS & CABINET PARTS

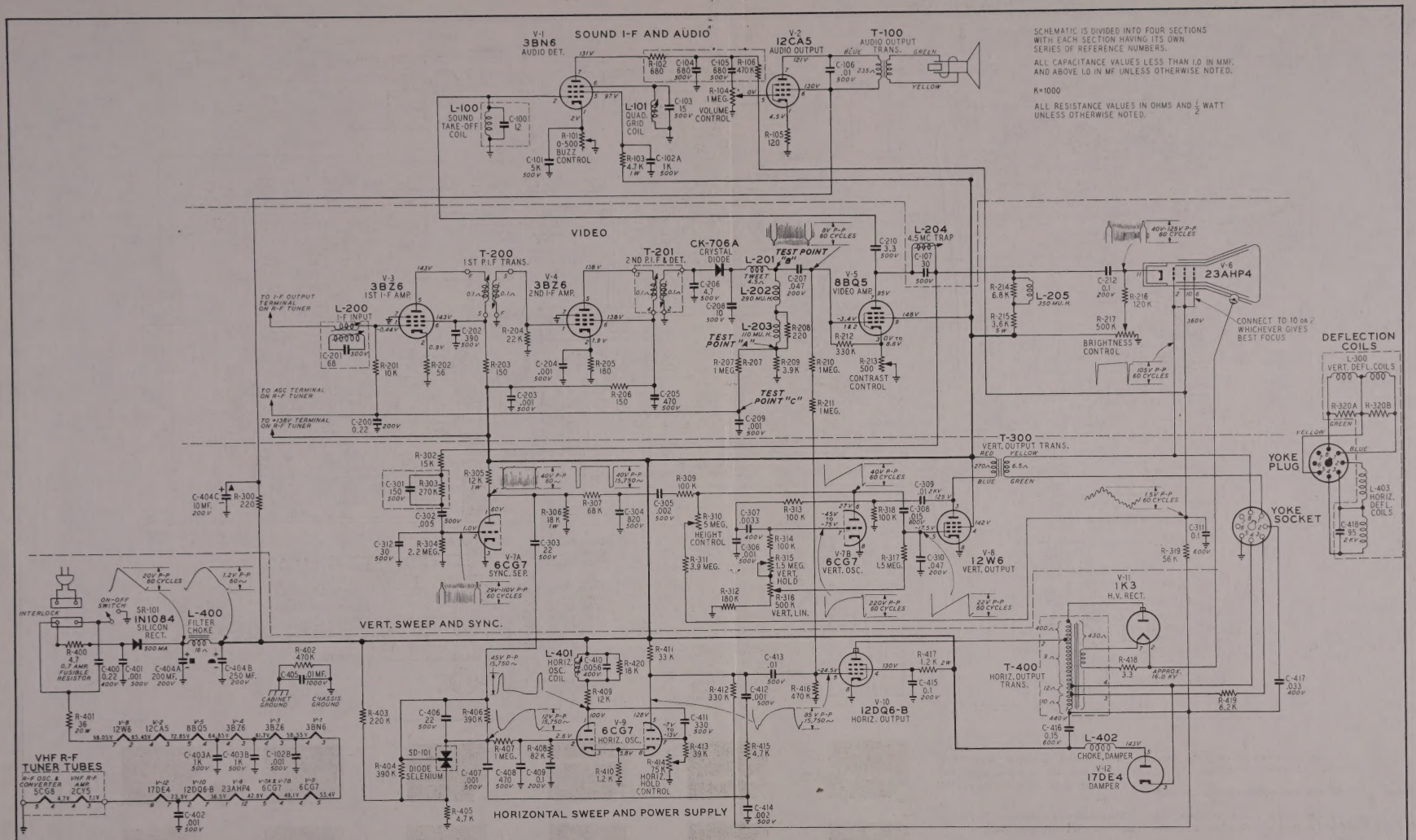
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	TK-253-1	Volume, Tone, Model MR241
Knob	TA-1855	Volume, Models SR441, SS461
Knob	TK-246-2	Tone, Models SR441, SS461
Pushbutton	TB-1010-2	
Knob	TK-291	Simul-Track, Model SS-461
Cabinet	TA-1929	Model MR241
Cabinet	TA-1927	Model SR441
Cabinet	TA-1843	Model SS461

WIRING DATA

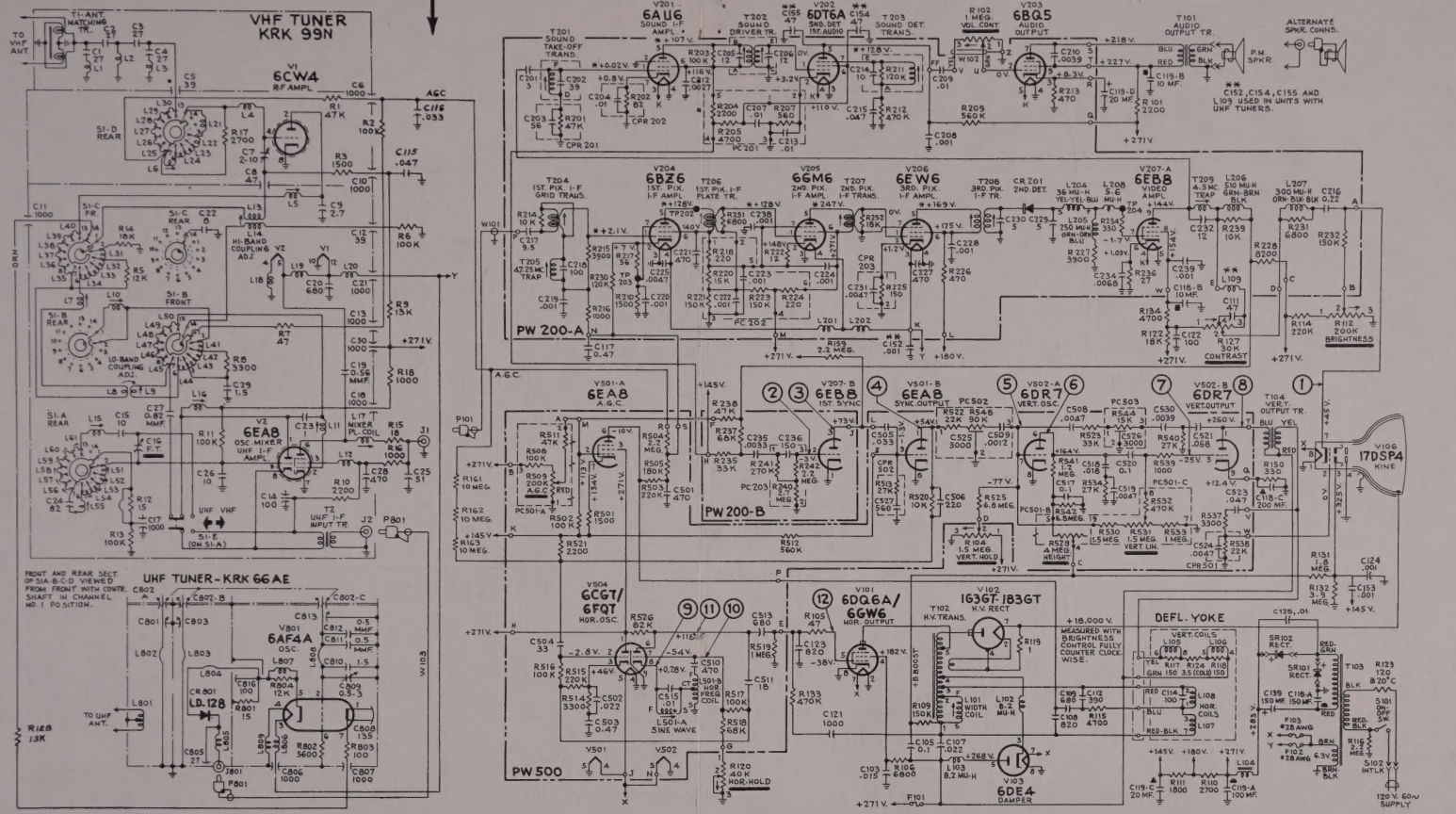
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)


SOUND I-F AND AUDIO
VIDEO
VERT. SWEEP AND SYNC.
HORIZONTAL SWEEP AND POWER SUPPLY
VHF R-F TUNER TUBES
DEFLECTION COILS
SCHEMATIC IS DIVIDED INTO FOUR SECTIONS WITH EACH SECTION HAVING ITS OWN SERIES OF REFERENCE NUMBERS.
ALL CAPACITANCE VALUES LESS THAN 1.0 IN MMF. AND ABOVE 1.0 IN MF UNLESS OTHERWISE NOTED.
K=1000
ALL RESISTANCE VALUES IN OHMS AND 1/2 WATT UNLESS OTHERWISE NOTED.

AIRLINE MODELS WG-5221A, WG-5227A, WG-5231A, WG-5321A, WG-5327A, WG-5331A

Schematic Diagram Courtesy of Montgomery Ward & Company



All schematics are shown in the latest condition at the time of printing.

All resistance values in ohms. K = 1000.

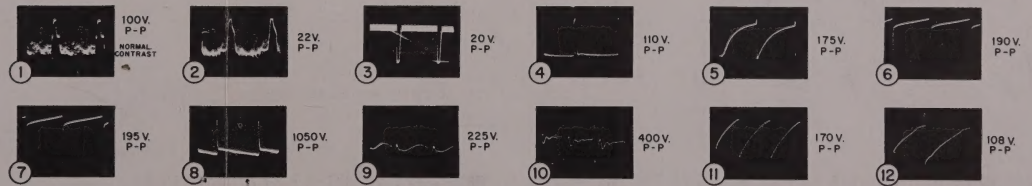
All capacitance values less than 1 in MF and above 1 in MMF unless otherwise noted.

Direction of arrows at controls indicates clockwise rotation.

All voltages measured with "Volt-Ohmyst" and with no signal input. Voltages should hold within ±20% with 120 v, a-c supply.

*Measured with 1 megohm, ½ watt resistor in series with meter probe.

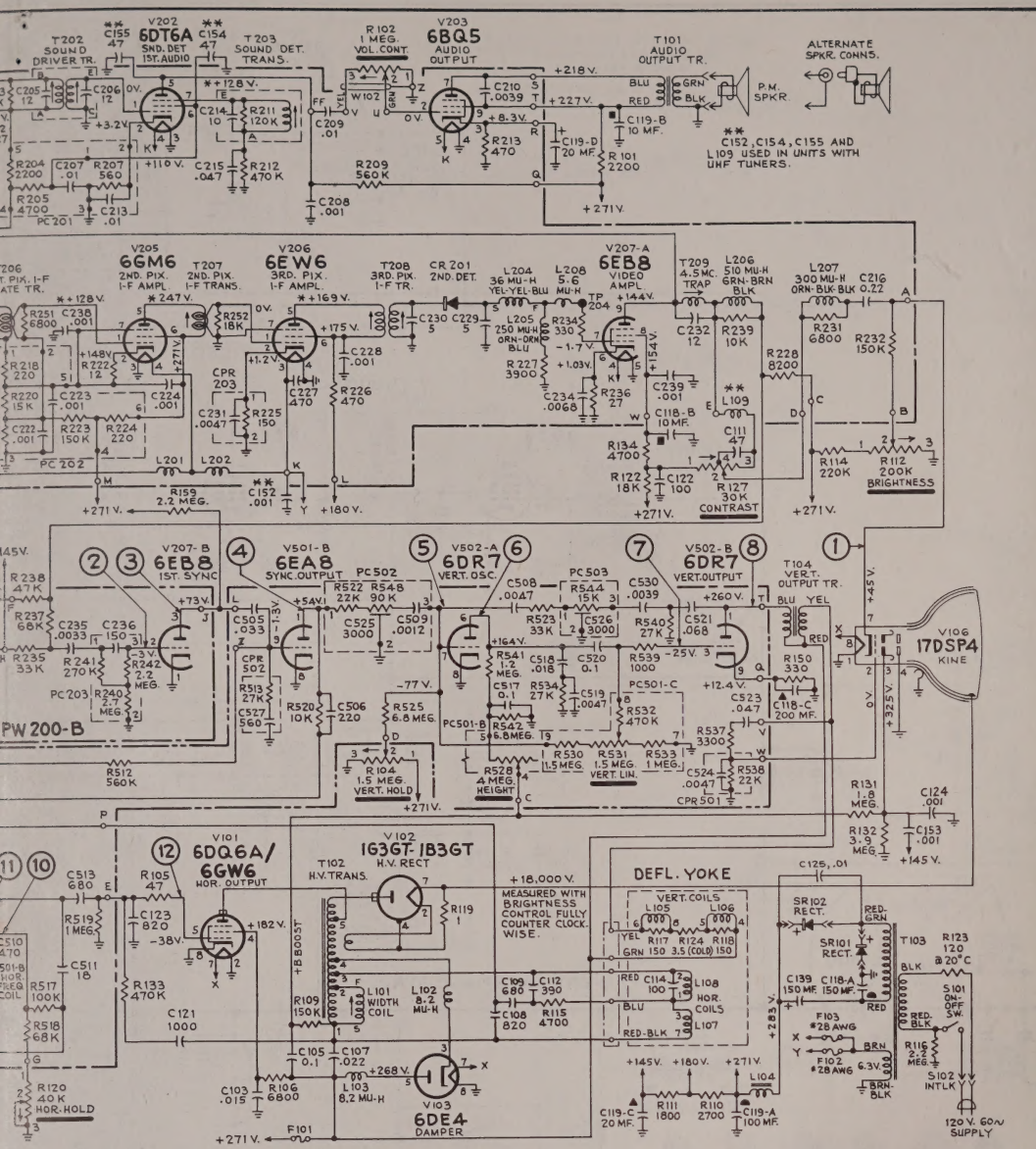
Balloons ①② etc., shown on schematic indicate points of observation of the waveforms shown below the schematic.

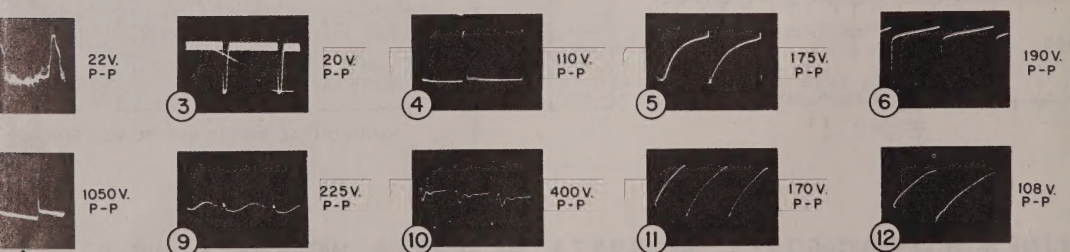


RCA VICTOR MODELS 172A042MU, MV, 172A049MU, MV (CH. KCS130YAB, YAC)

Schematic Diagram Courtesy of Radio Corporation of America

©Howard W. Sams & Co., Inc. 1961 SET 555 FOLDER 15-S





YAB, YAC)

Schematic Diagram Courtesy of Radio Corporation of America